

# Service Manual

Stereo Cassette Deck

Cassette Deck



## RS-AZ7

Colour

(K)...Black Type



AR-1 MECHANISM SERIES

### Area

Suffix for Model No.	Area	Colour
(E)	Europe.	(K)
(EB)	Great Britain.	
(EG)	Germany and Italy.	

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**SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ**  
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**OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES\**  
**ПРОВЕРКА РАБОТОСПОСОБНОСТИ И ПРОЦЕДУРА ЗАМЕНЫ ОСНОВНЫХ КОМПОНЕНТОВ**  
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**PACKAGING\УПАКОВКА**

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# Technics

## ■ SPECIFICATIONS

### ■ CASSETTE DECK SECTION

Deck system	Stereo cassette deck
Track system	4-track, 2-channel
Recording system	AC bias
Bias frequency	210 kHz
Erasing system	AC erase
Heads	Recording head (Permalloy)×1 Playback head (Thin -Film type)×1 Erasing head (Double-gap ferrite)×1
Motors	Capstan drive (DC servo motor)×1 Reel table drive (DC motor)×1
Tape speed	4.8 cm/s.
Wow and flutter	0.07% (WRMS) ±0.2% (DIN)
Fast forward and rewind times	Approx. 35 seconds with C-60 cassette tape
Frequency response (Dolby NR off)	
TYPE I (NORMAL)	20 Hz–17 kHz, ±3 dB 20 Hz–18 kHz (DIN)
TYPE II (HIGH)	20 Hz–18 kHz, ±3 dB 20 Hz–19 kHz (DIN)
TYPE IV (METAL)	20 Hz–23 kHz, ±3 dB 20 Hz–24 kHz (DIN)
S/N (Signal level=max recording level, TYPE II type tape)	
NR off	62 dB (A weighted)
Dolby B NR on	71 dB (A weighted)
Dolby C NR on	78 dB (A weighted)

### Input sensitivity and impedance

REC (IN) 100 mV/47 k $\Omega$

### Output voltage and impedance

PLAY (OUT) 500 mV/500  $\Omega$

HEADPHONES 190 mV/(8  $\Omega$ )

(Load impedance 8  $\Omega$ –600  $\Omega$ )

### ■ GENERAL

#### Power consumption

26 W

2.8 W (Remocon Standby)

1.6 W (Power Standby)

#### Power supply

AC 50 Hz, 230 V–240 V

#### Dimensions (W×H×D)

430×125×290 mm

#### Weight

4.2 kg

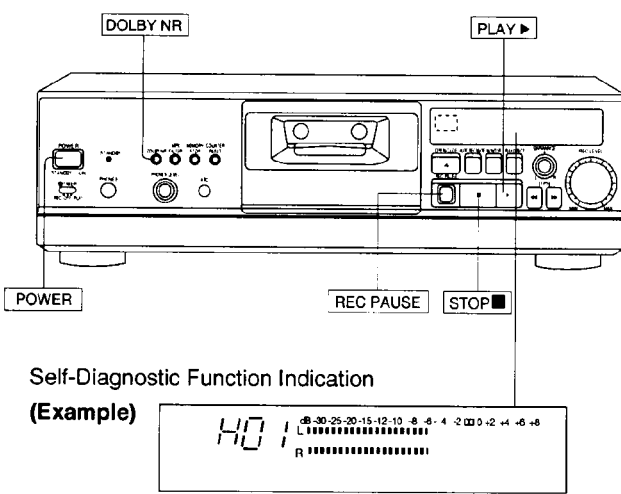
#### Note:

Specifications are subject to change without notice.

Weight and dimensions are approximate.

## ■SELF-DIAGNOSTIC

On this unit, each automatic adjustment result are displayed on the FL display. This function is convenient to check or identify.

Indication Procedure	Indication Position
<ul style="list-style-type: none"> <li>• Normal blank tape (which has the erase preventing piece folded.)</li> <li>• Normal blank tape (which has the erase preventing pieces respectively.)</li> </ul> <p><b>To enter Self-Diagnostic mode</b></p> <ol style="list-style-type: none"> <li>1. Check the deck is empty (no cassette tape), then turn on the power.</li> <li>2. Press and hold the DOLBY NR button (for more than 3 seconds), and also press the STOP (■) button until the level meter changes from constantly lit to blinking.</li> </ol> <p><b>To indicate Self-Diagnostic Function</b></p> <ol style="list-style-type: none"> <li>1. Insert a normal tape for the deck, either side A or B of which has the erase preventing piece folded. Then close the cassette holder.</li> <li>2. Press the PLAY (▶) button and play the tape for more than 1 second, then press the STOP (■) button.</li> <li>3. Insert a normal blank cassette tape the deck, both sides A and B of which have the erase preventing pieces respectively, and close the cassette holder. (NOTE: The tape has to be taken up by playback for about 1 minute.)</li> <li>4. Press the REC PAUSE button. This makes the deck perform the following operations automatically.</li> </ol>	 <p>Self-Diagnostic Function Indication (Example)</p>
<p>Record an eight-second portion with no sound. → Record a twenty-second portion off 400 Hz test signal.</p> <p>STOP when the portion with no sound is found. ← TPS-REVIEW search mode ← Stop the unit.</p> <ol style="list-style-type: none"> <li>5. Press the STOP (■) button to display the Self-Diagnostic results. When a fault occurs, the FL display indicates the results of Self-Diagnostic tests. For multiple faults, the indication changes each time. (ex... H01→H02→F01→H01→H02→F01...)</li> <li>6. If there is no fault, the counter display remains unchanged when the STOP (■) button is pressed.</li> </ol> <p><b>To resume Ordinary Indication</b></p> <p>To return the display to normal mode, switch the power off and then back on again.</p> <p><b>To indicate Self-Diagnostic Function again</b></p> <p>To have the indication appear again, take the above-stated steps 1 and 2 of "To enter Self-Diagnostic mode", and the STOP (■) button is pressed.</p> <p><b>To clear the memory of the Self-Diagnostic mode</b></p> <p>The contents of the Self-Diagnostic mode are stored in memory. To clear the memory, press the STOP (■) button for more than 6 seconds until "CL" appears in the FL display. After the repairing, the memory must be cleared.</p>	

## Indication Text

Symbol	Trouble	Remedy
H01	Irregular action of cassette mechanism.	The cassette mechanism mode switch (S971) and solenoid are defective. (Check and replace them.)
H02	No recording can be made, or the unit is placed in the recording mode though the erase preventing piece has been broken.	The erase preventing switch (S975) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H03	Pressing the PLAY (▶) button fails to play the tape. Pressing the PLAY (▶) button causes the motor to rotate though nocassette tape is in.	The cassette half detect switch (S972) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H04	The cassette holder will not open or close when the OPEN/CLOSE (▲) button is pressed.	The cassette holder open/close detect switch (S851, 852) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H05	Pressing the OPEN/CLOSE (▲) button causes the cassette holder to open after it has closed, and vice versa.	
H06	No treble is produced when a normal tape is played or recorded.	The auto tape select (CrO <sub>2</sub> ) switch (S973) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
H07	Excessive treble is produced when a CrO <sub>2</sub> /Metal tape is played, or the recorded treble is distorted and at a low level.	The auto tape select (Metal) switch (S976) contacts improperly, or there is a shortcircuit. (Check and replace the switch.)
F01	When the PLAY (▶) button is pressed, the tape runs a little and stops soon.	The photo interrupter IC (IC971, 972) is defective and, as the result, reel pulse is out of order. (Check and replace the IC.)
F02	TPS does not operate.	The playback IC (IC2) is defective. (Check and replace the IC.)
F03	The cassette holder will not open or close when the OPEN/CLOSE (▲) button is pressed. Irregular action of cassette mechanism.	Reel motor is defective. (Check and replace it.)

## ■ OPERATION CHECKS AND MAIN COMPONENT REPLACEMENT PROCEDURES

### NOTE

1. This section describes procedures for checking the operation of the major printed circuit boards and replacing the main components.
2. For reassembly after operation checks or replacement, reverse the respective procedures. Special reassembly procedures are described only when required.
3. Select items from the following index when checks or replacement are required.
4. Illustrated screws are equivalent to actual size.
5. Refer the parts No. on the page of "Main Component Replacement Procedures", if necessary.

### ● Contents

#### •Checking Procedure for each P.C.B.

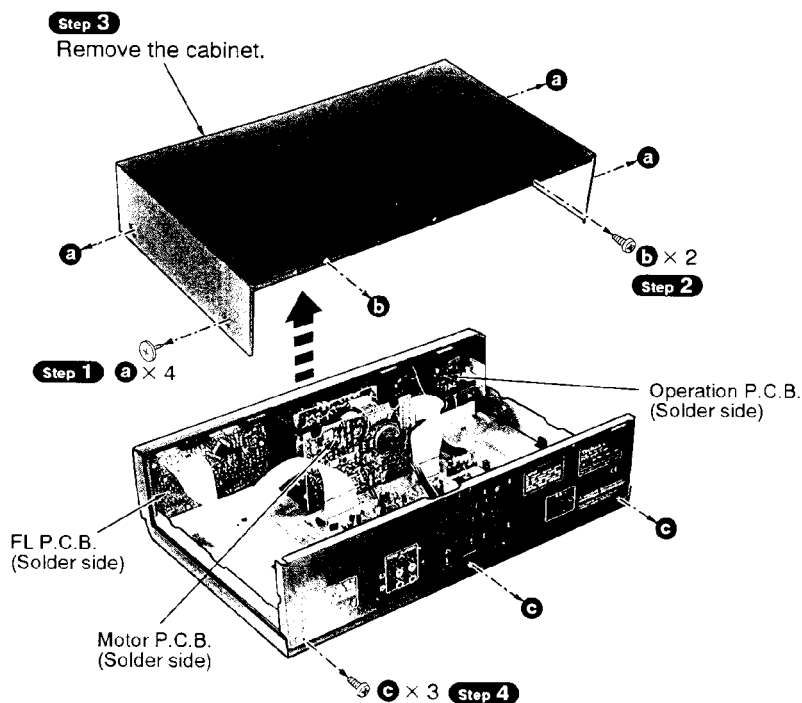
- |                                                                                    |        |
|------------------------------------------------------------------------------------|--------|
|                                                                                    | Page.  |
| 1. Checking for the motor P.C.B., FL P.C.B., operation P.C.B. and main P.C.B. .... | 12,13. |

#### •Main Component Replacement Procedures

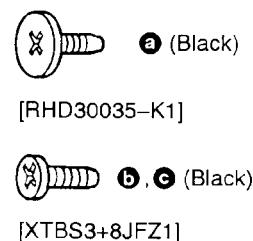
- |                                                                                                |        |
|------------------------------------------------------------------------------------------------|--------|
| 1. Replacement for the cassette lid ass'y, sub cassette holder and cassette holder ass'y. .... | 13~17. |
| 2. Replacement for the pinch arm (F), head block (rec./playback) and erase head. ....          | 18.    |
| 3. Replacement for the belt, reel motor and capstan motor. ....                                | 18~20. |
| 4. Replacement for the parts mounted on mechanism P.C.B. and solenoid. ....                    | 21.    |

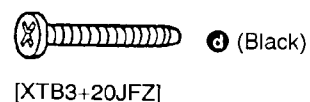
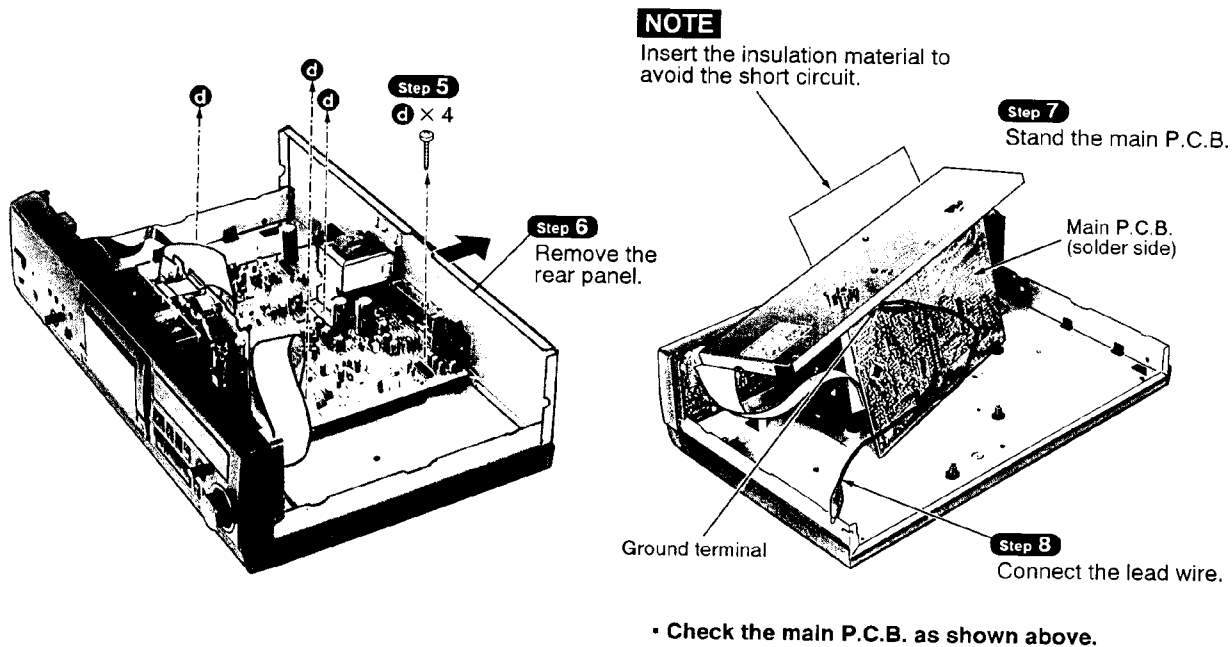
## ■ Checking Procedure for each P.C.B.

1. Checking for the motor P.C.B., FL P.C.B., operation P.C.B. and main P.C.B.



- Check the motor P.C.B., FL P.C.B. and operation P.C.B. as shown above.

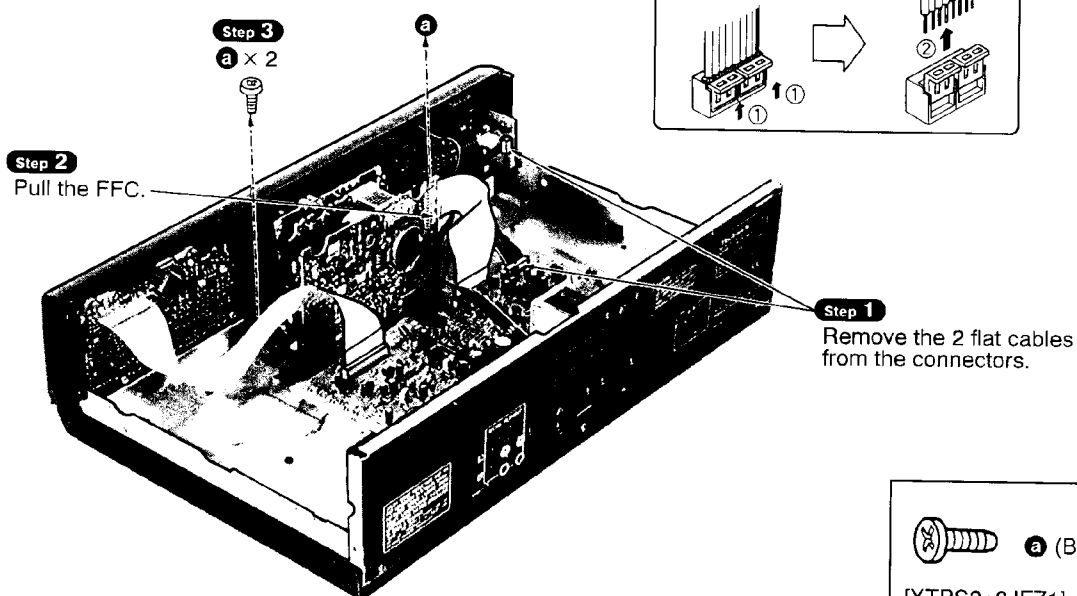




## ■ Main Component Replacement Procedures

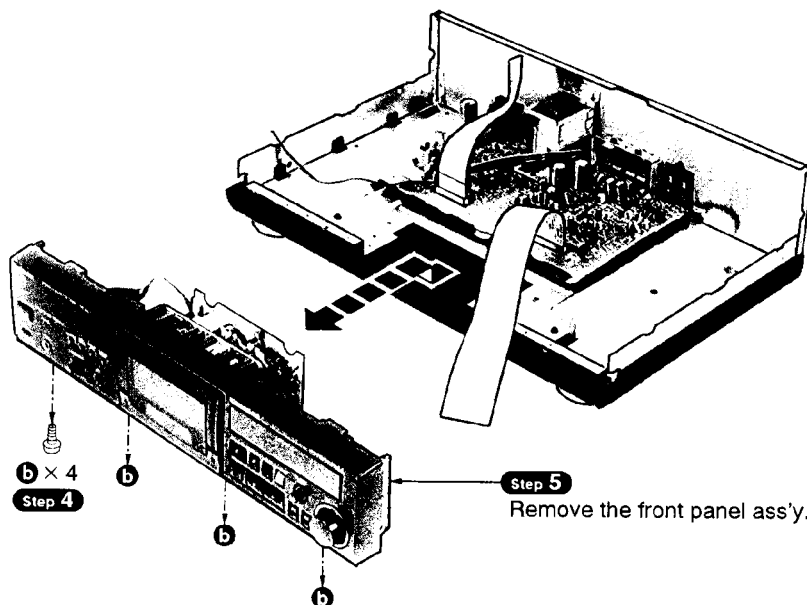
### 1. Replacement for the cassette lid ass'y, sub cassette holder and cassette holder ass'y

- Follow the item 1 ( **Step 1** ~ **Step 3** ) in checking procedures for each P.C.B. on page 12.





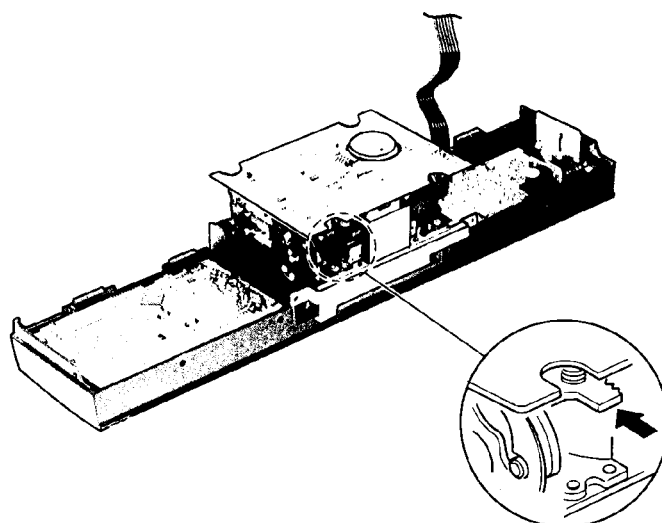
[XTBS3+8JFZ1]



**b** × 4  
**Step 4**

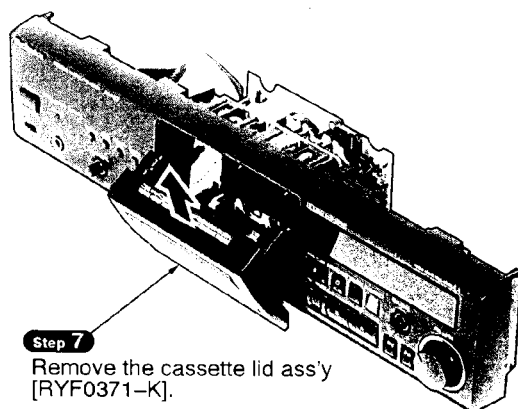
**Step 5**

Remove the front panel ass'y.



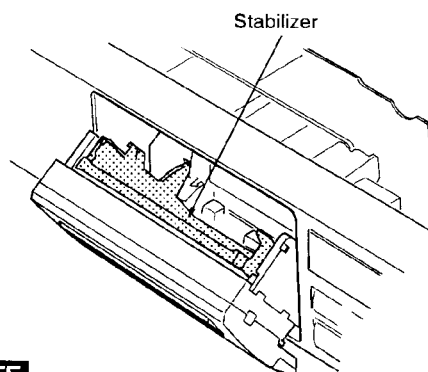
**Step 6**

Force the drive rack, and then open the cassette lid ass'y.



**Step 7**

Remove the cassette lid ass'y [RYF0371-K].



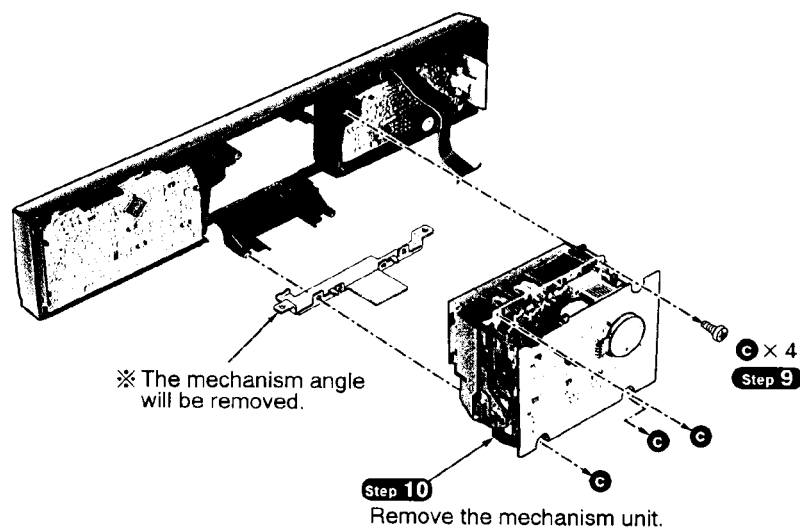
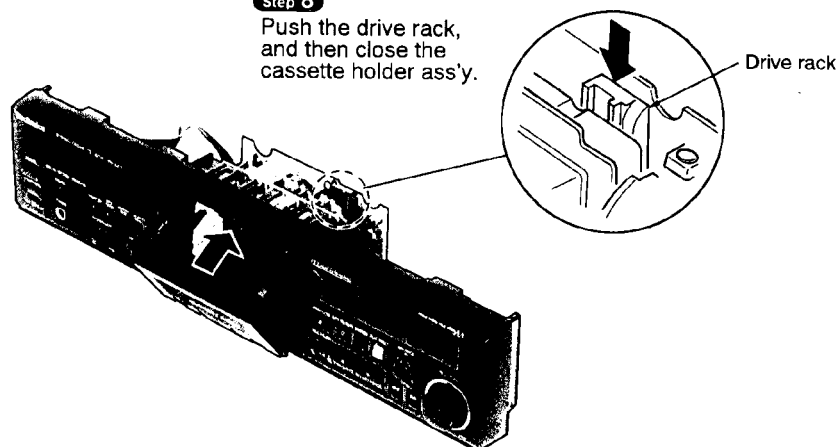
Stabilizer

**NOTE**

When replacing the cassette lid ass'y and cassette holder ass'y, avoid to push the stabilizer marking with .

**Step 8**

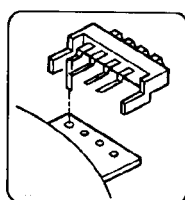
Push the drive rack,  
and then close the  
cassette holder ass'y.

**Step 12**

Unsolder the capstan  
motor terminals.

**NOTE**

Handle with care  
the terminals.

**Step 14**

d x 2

**Step 15**

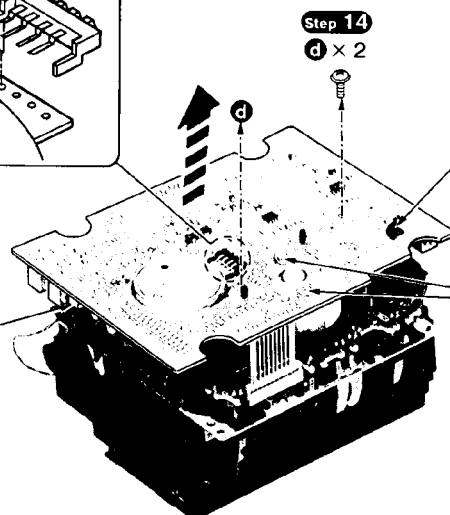
Release the claw, and then  
remove the motor P.C.B..

**Step 13**

Unsolder the reel motor terminals.

**Step 11**

Pull the connector  
(CP102).

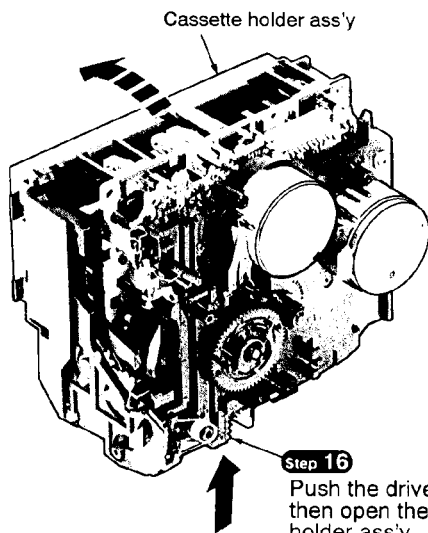


[XTB3+12GFY]



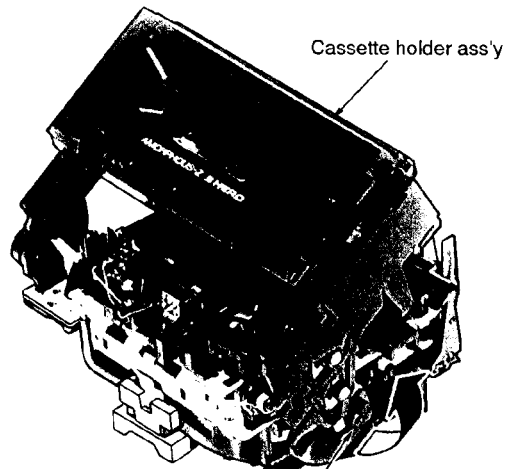
[XTW2+6S]





**Step 16**

Push the drive rack, and then open the cassette holder ass'y.

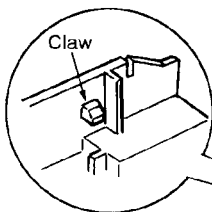
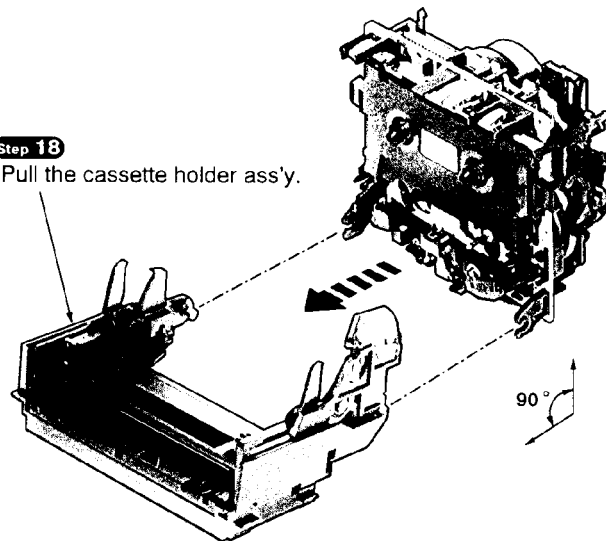


**Step 17**

Remove the cassette holder ass'y from the drive lever shaft.

**Step 18**

Pull the cassette holder ass'y.



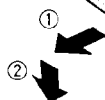
Stabilizer

**Step 19**

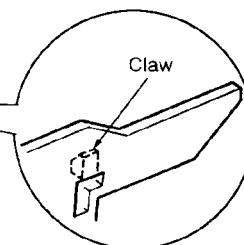
Release the claws on both side with minus screwdriver, and then remove the sub cassette holder in the direction of allow ① and ②.

**NOTE**

When replacing the sub cassette holder, avoid to push the stabilizer.

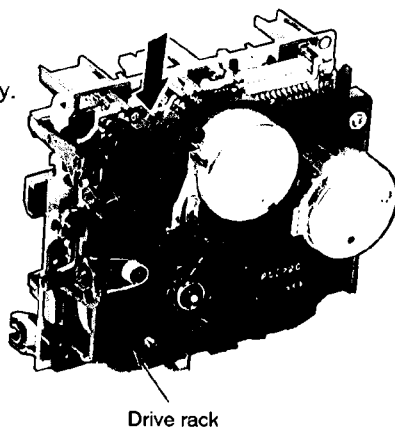


Sub cassette holder  
[RKQ0190-K]

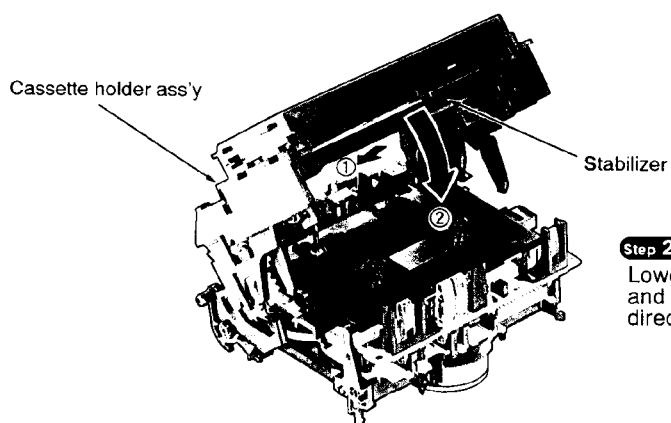
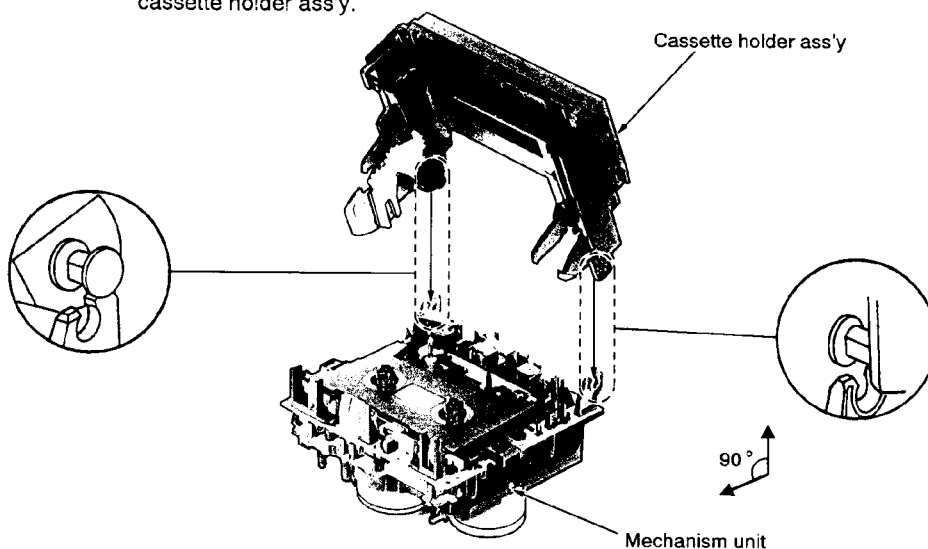


**Installation of the cassette holder ass'y after replacement****Step 20**

Force the drive rack fully.

**Step 21**

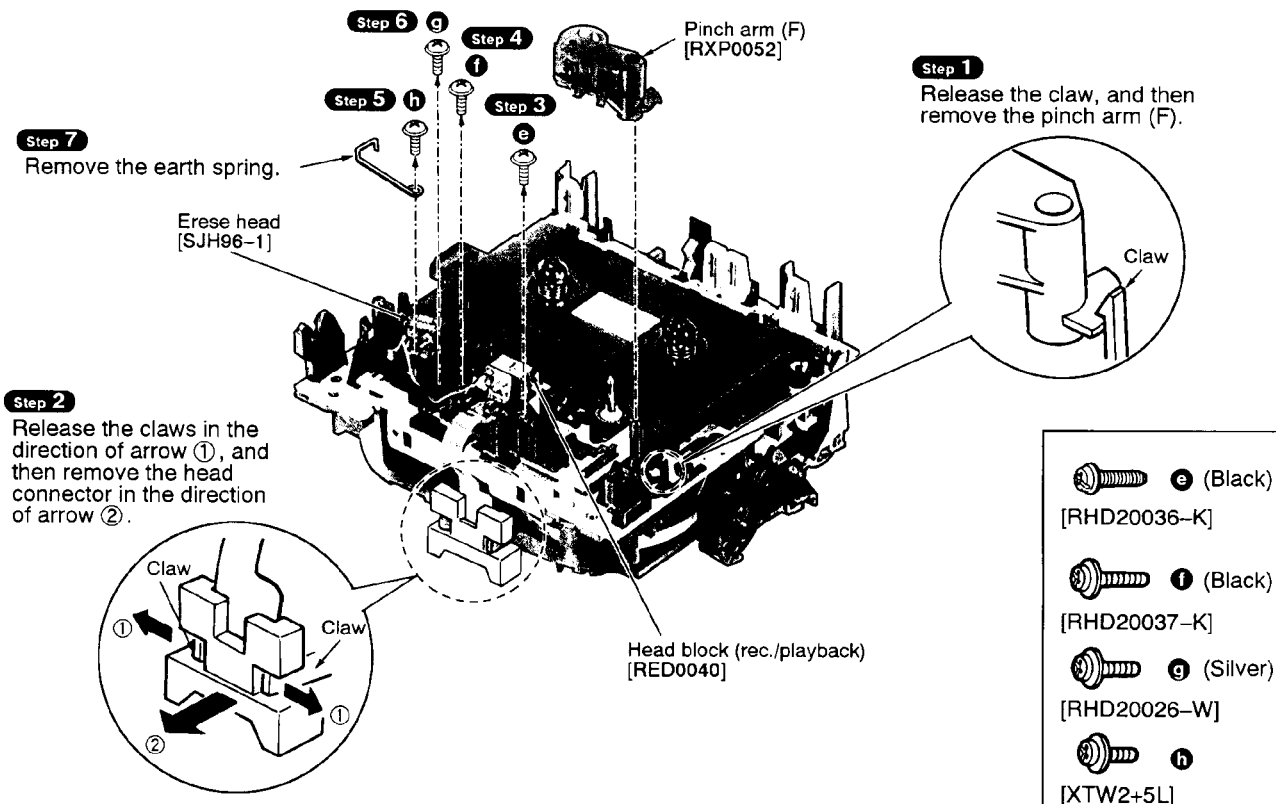
Locate the cassette holder ass'y and mechanism unit at a 90 degree angle, and then install the cassette holder ass'y.

**Step 22**

Lower the stabilizer in the direction of arrow ①, and then push the cassette holder ass'y in the direction of arrow ②.

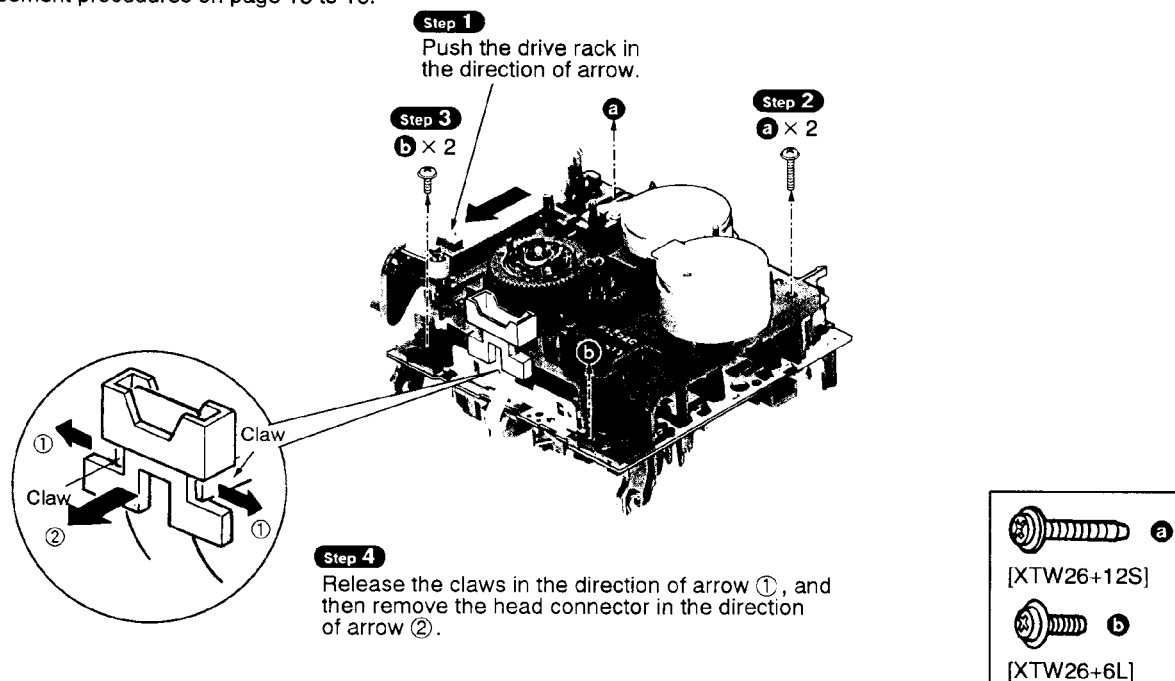
## 2. Replacement for the pinch arm (F), head block (rec./playback) and erase head

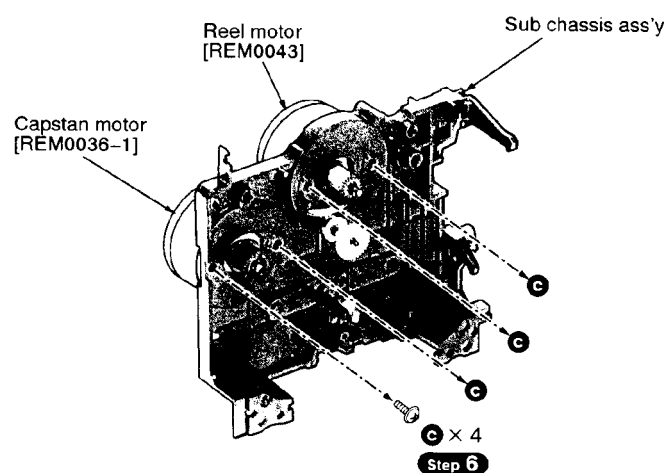
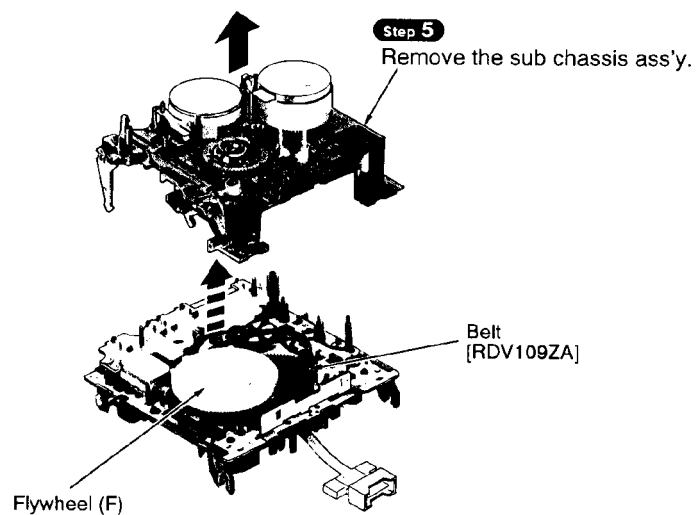
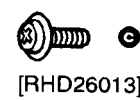
- Follow the item 1 ( **Step 1** ~ **Step 17** ) in main component replacement procedures on page 13 to 16.



### 3. Replacement for the belt, reel motor and capstan motor

- Follow the item 1 ( **Step 1** ~ **Step 17** ) in main component replacement procedures on page 13 to 16.

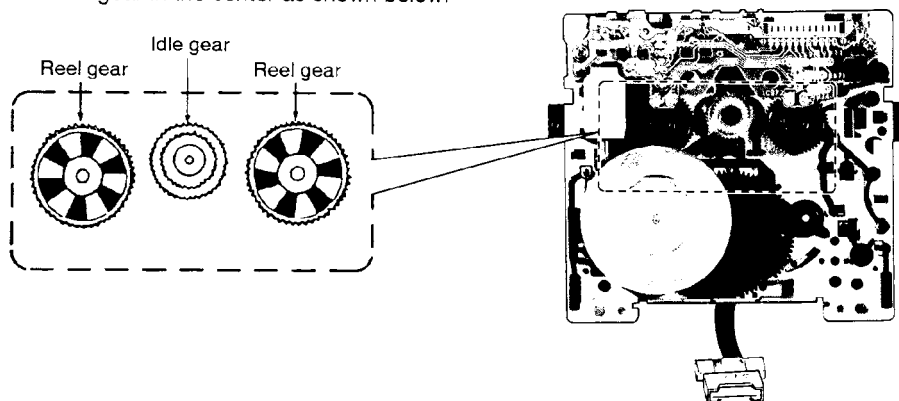




### Installation of the sub chassis ass'y after replacement

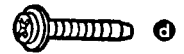
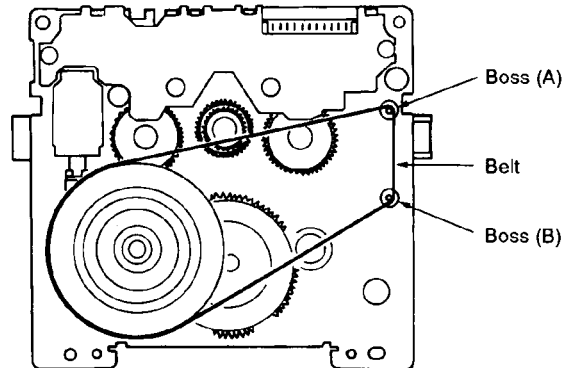
**Step 7**

Place the idle gear in the center as shown below.



**Step 8**

Temporarily secure the belt.



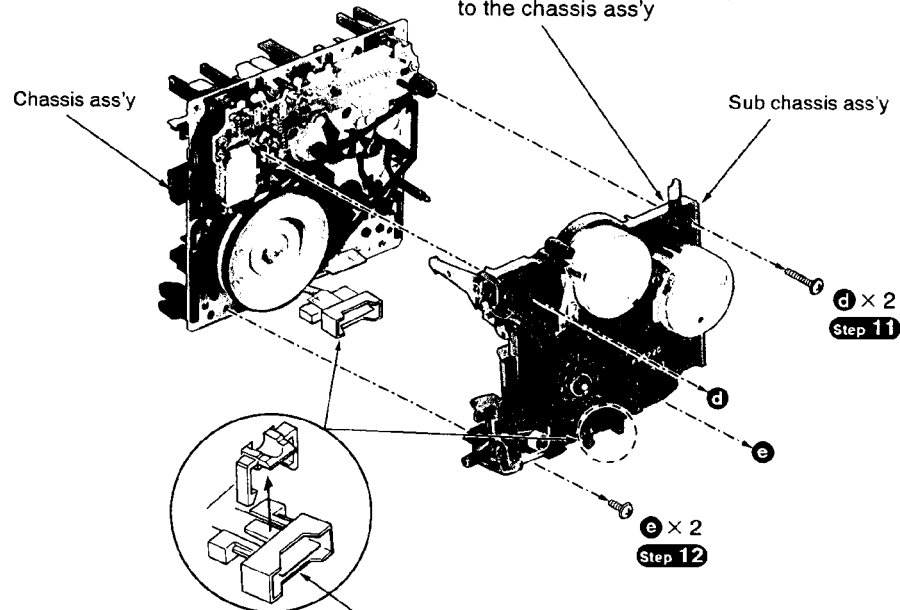
[XTW26+12S]



[XTW26+6L]

**Step 9**

Install the sub chassis ass'y to the chassis ass'y

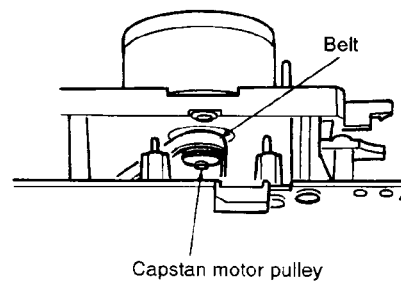
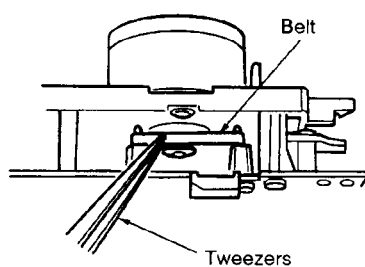


**Step 10**

Install the head connector.

**Step 13**

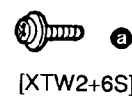
Secure the belt with the capstan motor pulley.



#### 4. Replacement for the parts mounted on mechanism P.C.B. and solenoid

- Follow the item 1 ( **Step 1** ~ **Step 17** ) in main component replacement procedures on page 13 to 16.
- Follow the item 3 ( **Step 1** ~ **Step 5** ) in main component replacement procedures on page 18 to 19.

**Step 1**  
a × 2



**Step 2**  
Unsolder the terminals.

Mechanism P.C.B.

Claws

Claws

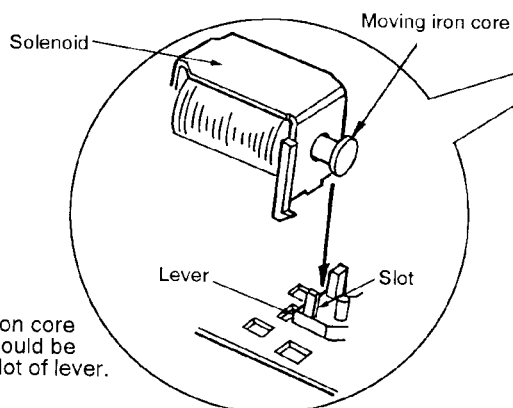
Dressing plate ass'y

**Step 3**  
Release the 5 claws, and then remove the dressing plate ass'y.

**Step 4**  
Release the 4 claws.

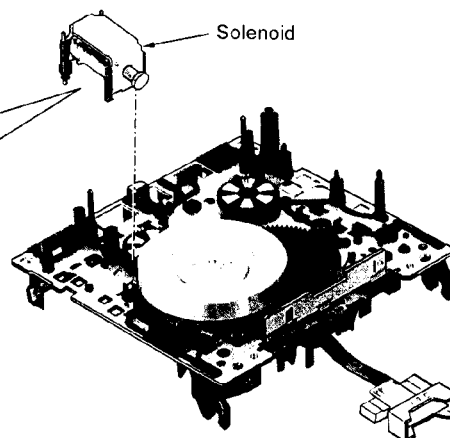
Solenoid  
[RSJ0003]

#### Notice for installing the solenoid



#### NOTE

The moving iron core of solenoid should be aligned with slot of lever.



## ■ ADJUSTMENT PROCEDURE

This unit holds recording bias and equalization data in its EEPROM chip. An internal CPU automatically adjusts playback gain, recording bias, overall gain, and overall frequency response according to the ROM data. Manual adjustment with potentiometers is no longer necessary except for head azimuth and tape speed. All other items require only measurement data checks. The adjustment and checkout procedures are as follows.

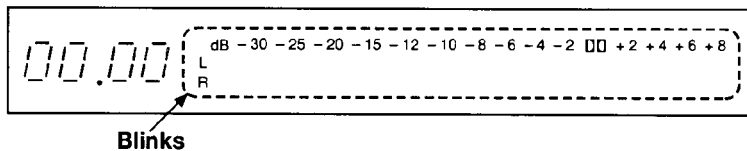
### ● Writing to EEPROM

The EEPROM chip holds the optimal recording bias and equalization data. If the chip has been replaced, be sure to write to it, following the steps below:

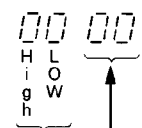
Short the Test Mode terminals with a shorting clip. (Fig. 1)

While holding down the STOP button, press the POWER switch to ON.

All FL display segments except for the four-digit counter will start blinking to indicate that the deck has entered Write mode.



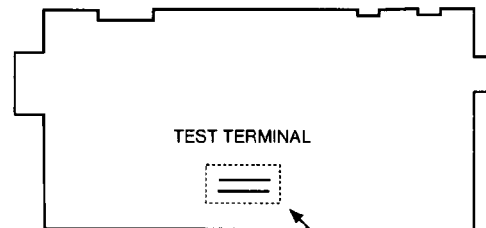
The counter shows a four-digit hex number. The two high-order digits indicate a ROM address, and the two low-order digits indicate the data stored at that address.



Set these digits using the FF or REW button. The high- and low-order digits of the address increment alternately each time the FF button is pressed. The REW button causes these digits to decrement alternately. For fast incrementing or decrementing, hold down the FF or REW button.

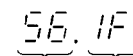
Set these digits using the PLAY or REC button. The high- and low-order digits of the data increment alternately each time the PLAY button is pressed. The REC button causes these digits to decrement alternately. For fast incrementing or decrementing, hold down the PLAY or REC button.

FL P.C.B.



(Fig. 1) Short with a shorting clip

Example: Set "1F" in address 56 (See Fig. 2)

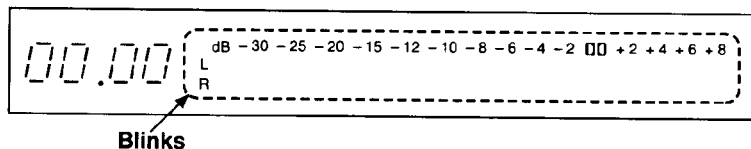


Set these digits to "1F" using the PLAY or REC button. Set these digits to "56" using the FF or REW button.

A

Begin from address  $0F$  and write data up to address  $7F$ . Check that the data at address  $7F$  is " $00$ "(end), and then exit the write mode. (Fig. 2)

After completing ROM writing, press the STOP button to restore the normal Test mode. The four-digit counter displays.



Remove the shorting clip from the Test Mode terminals. The FL display will stop blinking.

#### ● EEPROM MAP

High Low	0	1	2	3	4	5	6	7
0	00	—	—	—	—	—	—	—
1	00	—	—	—	—	—	—	—
2	—	00	—	—	—	—	—	—
3	—	00	—	—	—	—	—	—
4	—	0B	—	—	—	51	99	A8
5	—	28	—	—	—	00	00	00
6	—	21	—	—	—	1F	00	01
7	—	08	—	—	—	64	6A	FF
8	—	FB	—	—	—	BF	BF	FF
9	—	F5	—	—	—	—	—	—
A	—	50	—	—	—	—	—	85
B	—	60	—	—	—	73	73	73
C	—	58	—	—	—	68	68	68
D	—	8F	—	—	—	82	82	82
E	—	49	8A	8F	93	—	00	09
F	E8	53	0E	0D	0D	—	00	5A

Fig. 2



## MEASUREMENTS AND ADJUSTMENTS

### Measurement condition

- Recording-level control: Maximum
- Recording-balance control: Center
- Headphones volume control: Maximum
- Play direct switch: Off
- Dolby NR switch: Off
- ATC switch: Off
- MPX filter switch: Off
- Timer control switch: Off
- Make sure hands are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature  $20 \pm 5^{\circ}\text{C}$  ( $69 \pm 9^{\circ}\text{F}$ )

### Measuring instrument

- EVM (Electronic Voltmeter)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- ATT (Attenuator)
- DC voltmeter
- Resistor ( $600\Omega$ )
- Distortion analyser

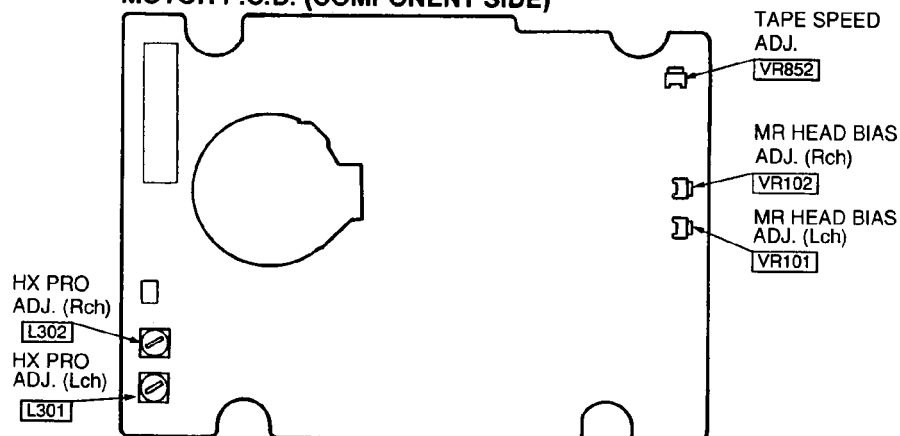
**Note:** Before adjustment, be sure to set the AF oscillator output level to 0dB (1kHz): 1V

### Test Tape

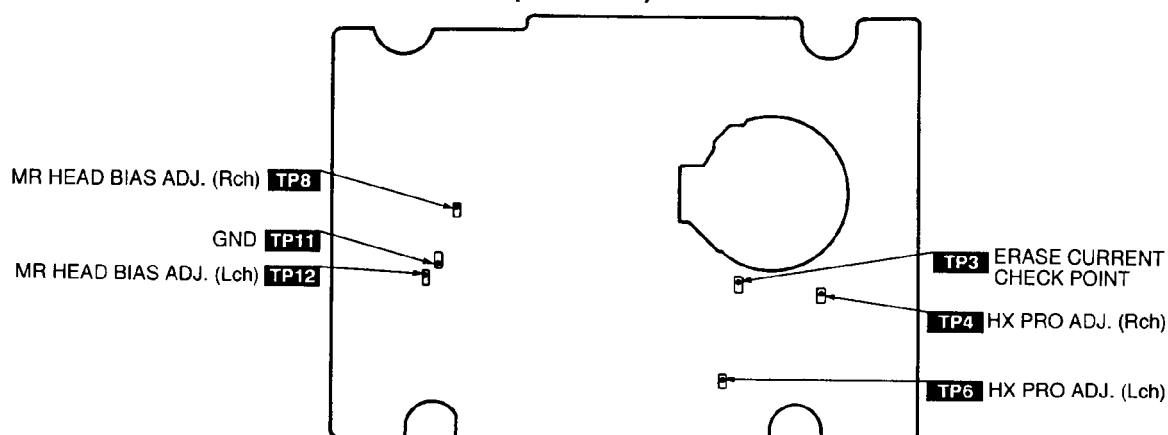
- Head azimuth adjustment (8kHz,  $-20\text{dB}$ )
- Playback frequency response (315Hz, 12.5kHz, 10kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, 63Hz,  $-20\text{dB}$ ) : QZZCFM
- Playback gain adjustment (315Hz, 0dB)
- MR head bias adjustment and HX PRO adjustment.
- Tape speed adjustment (3kHz,  $-10\text{dB}$ ) : QZZCWAT
- Overall gain adjustment and Overall frequency response
- Nomal blank tape
- CrO<sub>2</sub> blank tape
- Metal blank tape

### Adjustment Points

#### MOTOR P.C.B. (COMPONENT SIDE)



#### MOTOR P.C.B. (FOIL SIDE)



### HEAD AZIMUTH ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 1.
2. Playback the azimuth adjustment portion (8kHz, -20dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the output of the Rch are maximized. (Refer to Fig. 2)
3. After the adjustment, apply screwlock to the azimuth adjusting screw.

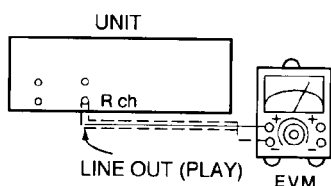


Fig. 1

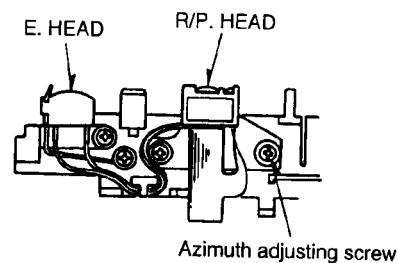


Fig. 2

### TAPE SPEED ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 3.
2. Playback the middle portion of the test tape (QZZCWAT).
3. Adjust VR852 for the output value shown below.

**Adjustment target:  $3000 \pm 15\text{Hz}$  (NORMAL speed)**

**Standard value:  $3000 \pm 45\text{Hz}$  (NORMAL speed)**

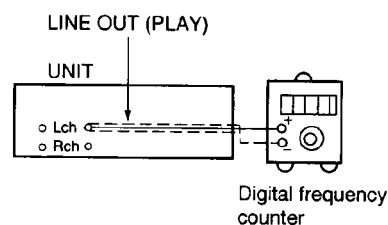


Fig. 3

### MR HEAD BIAS ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 4.
2. Short the section between the test points. (Lch: **TP12** and **TP11**, Rch: **TP8** and **TP11**)
3. Playback the playback gain adjustment portion (315 Hz, 0dB) of test tape (QZZCFM).
4. Adjust the VR101 (Lch) and VR102 (Rch) until the distortion is minimized.

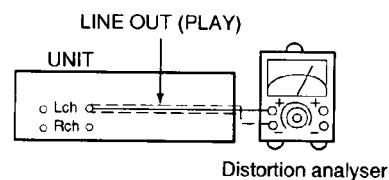


Fig. 4

### PLAYBACK GAIN ADJUSTMENT

1. Connect the measuring as shown in Fig. 5. Adjust the frequency of OSC (315Hz).
2. With no tape loaded in the deck, press and hold the REC button. Adjust the test signal level using the Rec. Level and Balance controls until the line output levels on both channels, Lch and Rch, are 320mV. When the adjustment is complete, release the REC button. (The deck stores the data at the moment the REC button is released.)
3. Load the test tape (QZZCFM) into the deck and locate the part where the playback gain test tone (315Hz, 0dB) is recorded. Press the ATC button and then PLAY button. (Automatic adjustment of the Playback gain adjustment.) After this, play back the tape and verify that the output level falls in the specified range.

**Standard value: 320mV $\pm$ 0.5dB**

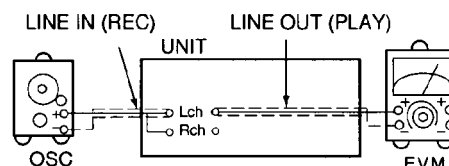


Fig. 5

### HX PRO ADJUSTMENT

1. Connect the measuring instrument as shown in Fig. 6.
  2. Insert the Metal blank tape into the deck, and press the REC PAUSE button.
  3. Connect the EVM between TP6 (Lch) and TP4 (Rch). Adjust the L301 (Lch) and L302 (Rch) until the outputs are minimized.
- (Note: Please refer to the printed circuit board diagram for test point locations.)

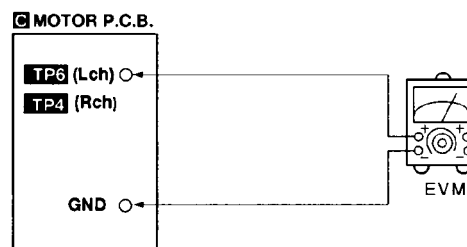


Fig. 6

### PLAYBACK FREQUENCY RESPONSE

1. Connect the measuring instrument as shown in Fig. 7.
2. Playback the frequency response portion (315Hz, 12.5kHz $\sim$ 63Hz, -20dB) of the test tape (QZZCFM).
3. Assure that the frequency response is within the range shown in Fig. 8 for both Lch and Rch.

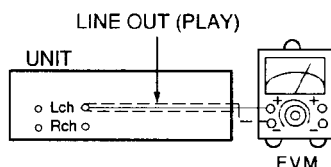


Fig. 7

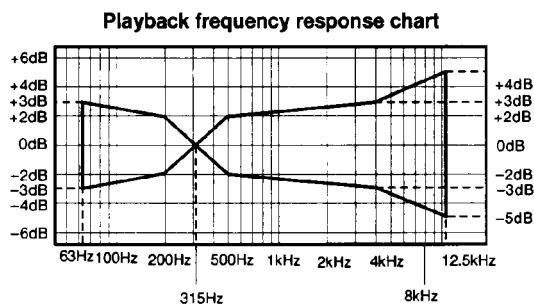


Fig. 8

### ERASE CURRENT CONFIRMATION

1. Connect the measuring instrument as shown in Fig. 9.
2. Insert the Metal blank tape into the deck, and press the REC PAUSE button.
3. Check if the output at this time between the erase current confirmation point **TP3** and **GND** (the output on both edged of R321) is within the standard value.

**Notes:**

- The test tape is not required when confirming the erase current.
- Please refer to the printed circuit board diagram (© MOTOR P.C.B.) for test point locations.

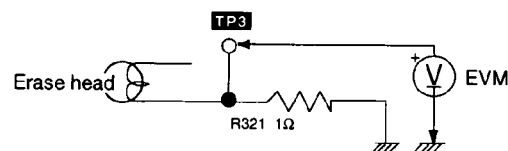


Fig. 9

Standard value	EVM reading
Metal tape: $190 \pm 20\text{mA}$ ( $190 \pm 20\text{mA}$ )	

### CONFIRMATION OF THE OVERALL GAIN AND OVERALL FREQUENCY RESPONSE

1. Connect the measuring instrument as shown in Fig. 10.
2. Load a Normal blank tape into the deck, press the ATC button, and then press the REC button. (automatic adjustment of the Overall gain and Overall frequency response.)
3. In the Record Pause mode, and apply the reference input signal (1kHz, -24dB) to the Rec. input. adjust the output to 320mV with the attenuator, and start recording.
4. While playing back the reference signal just recorded, verify that the output level falls in following range.

**Standard value:  $320\text{mV} \pm 0.5\text{dB}$**

5. Afterward, apply a signal (frequency at the measured point in the range from 50Hz to 10kHz), whose level is 20dB lower than the reference signal level (1kHz, -24dB=approx. 63mV), to the Rec. input. Then start recording with a Normal blank tape.
  6. Play back the test signals just recorded and verify that the levels at the test frequencies fall in the ranges specified in Fig.11 with respect to the reference signal level.
  7. Repeat steps 5 and 6 above for CrO<sub>2</sub> blank test tape and Metal blank test tape, in these cases raising the upper end of the test signal frequency range to 12.5kHz. Verify that the signal levels at the test frequencies fall in the ranges specified in Fig. 12 with respect to the reference signal level.
- Steps 1 through 4 above are concerned with overall gain; steps 5 through 7 pertain to overall frequency response.

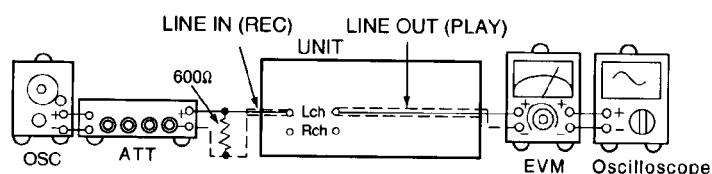


Fig. 10

Normal Overall frequency response chart (NR OUT)

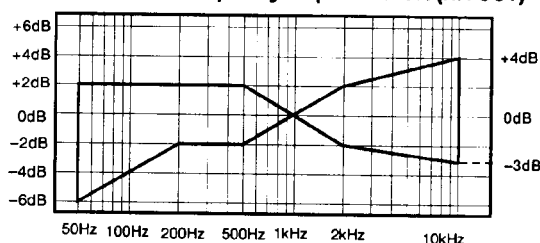


Fig. 11

CrO<sub>2</sub> Metal Overall frequency response chart (NR OUT)

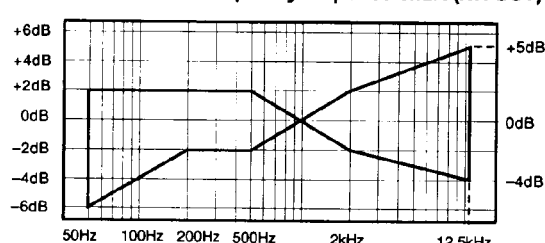
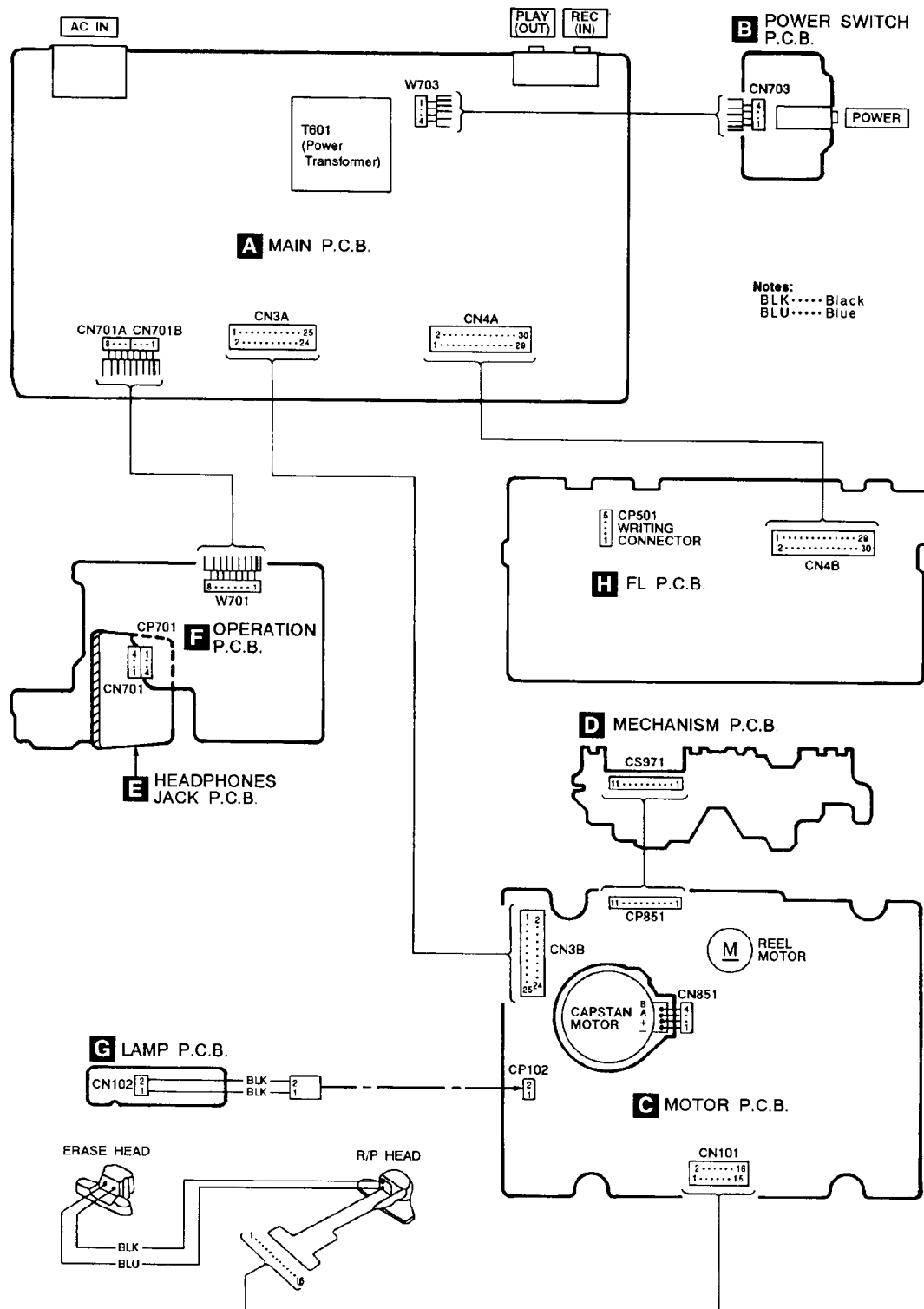
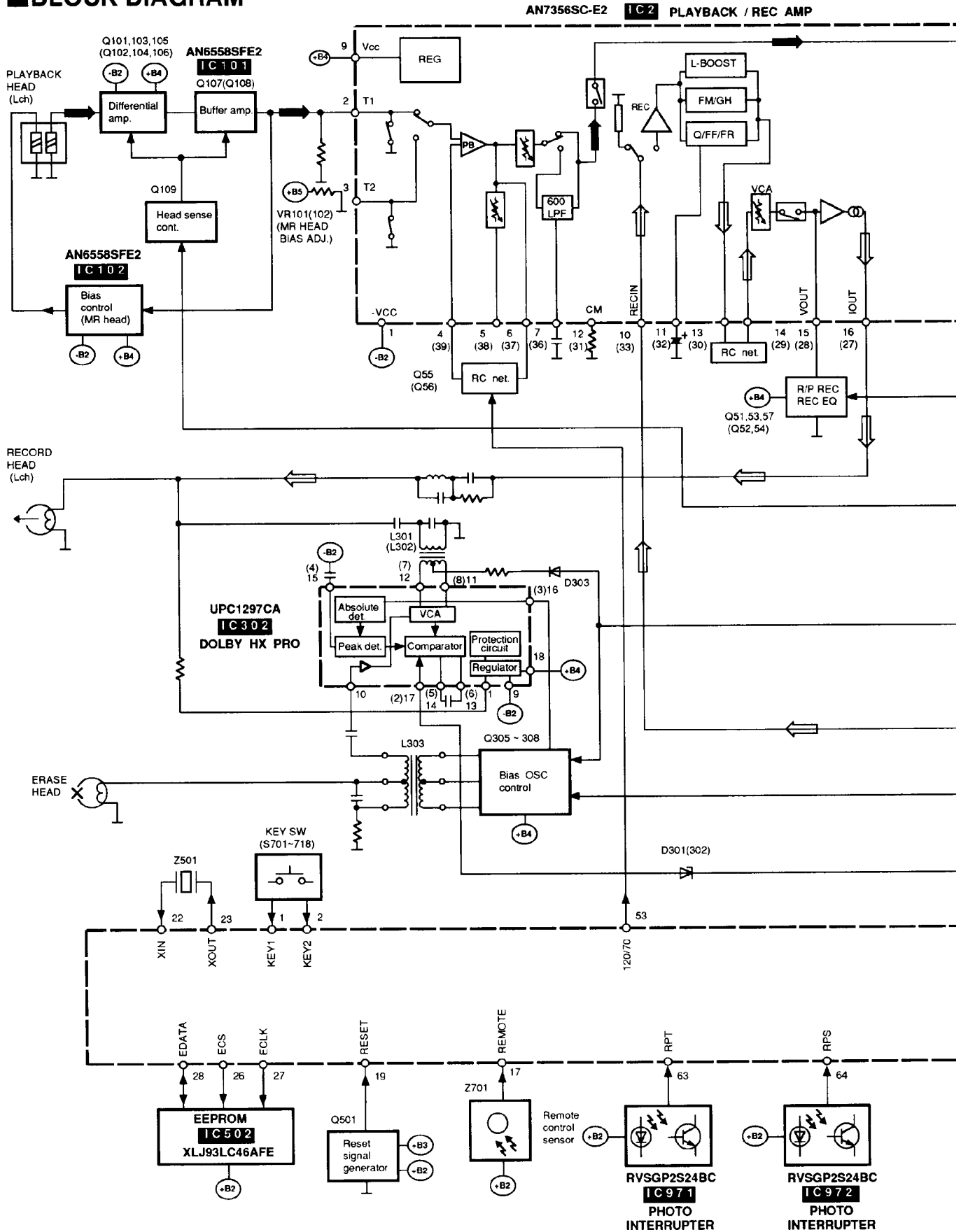


Fig. 12

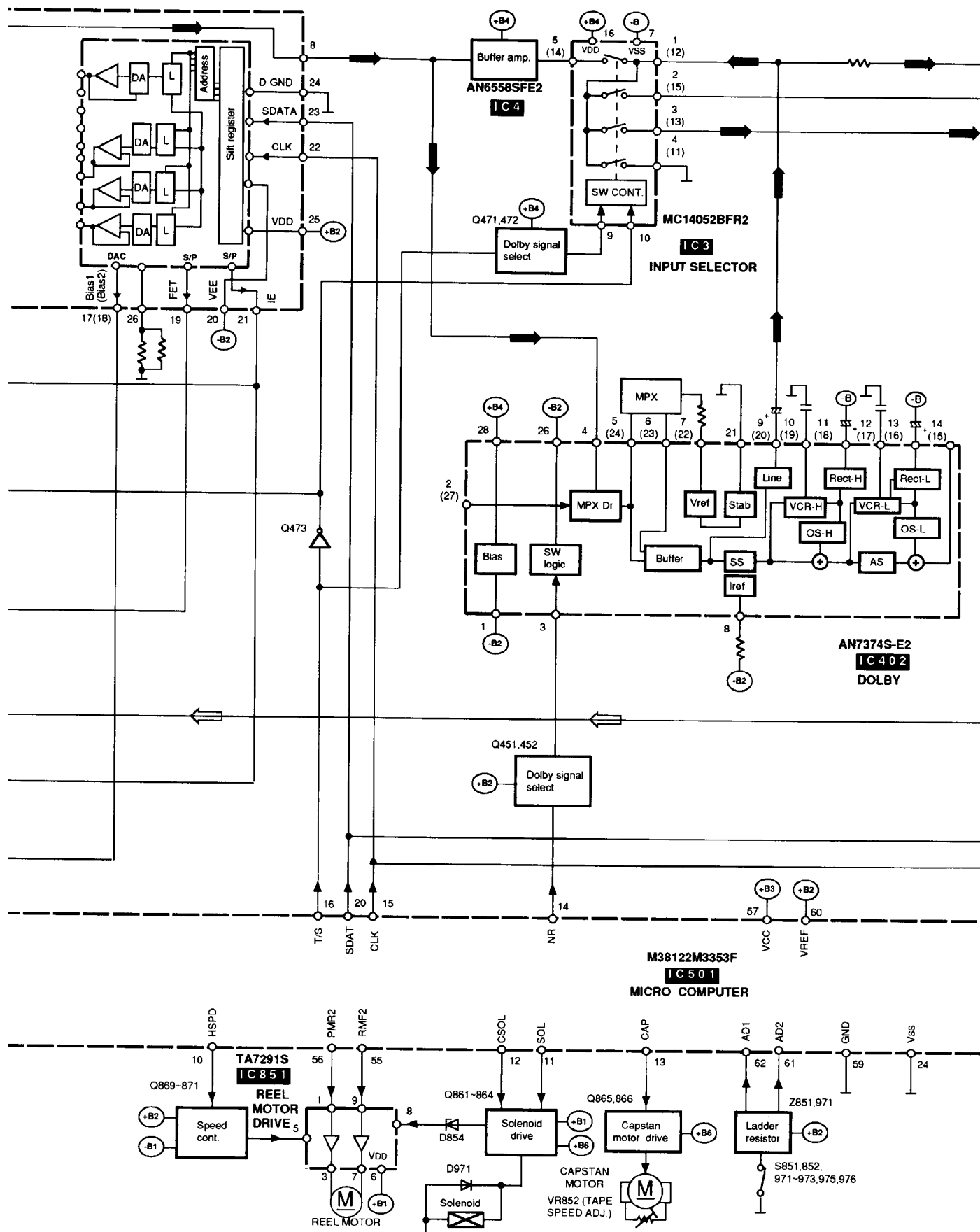
# WIRING CONNECTION DIAGRAM



## BLOCK DIAGRAM

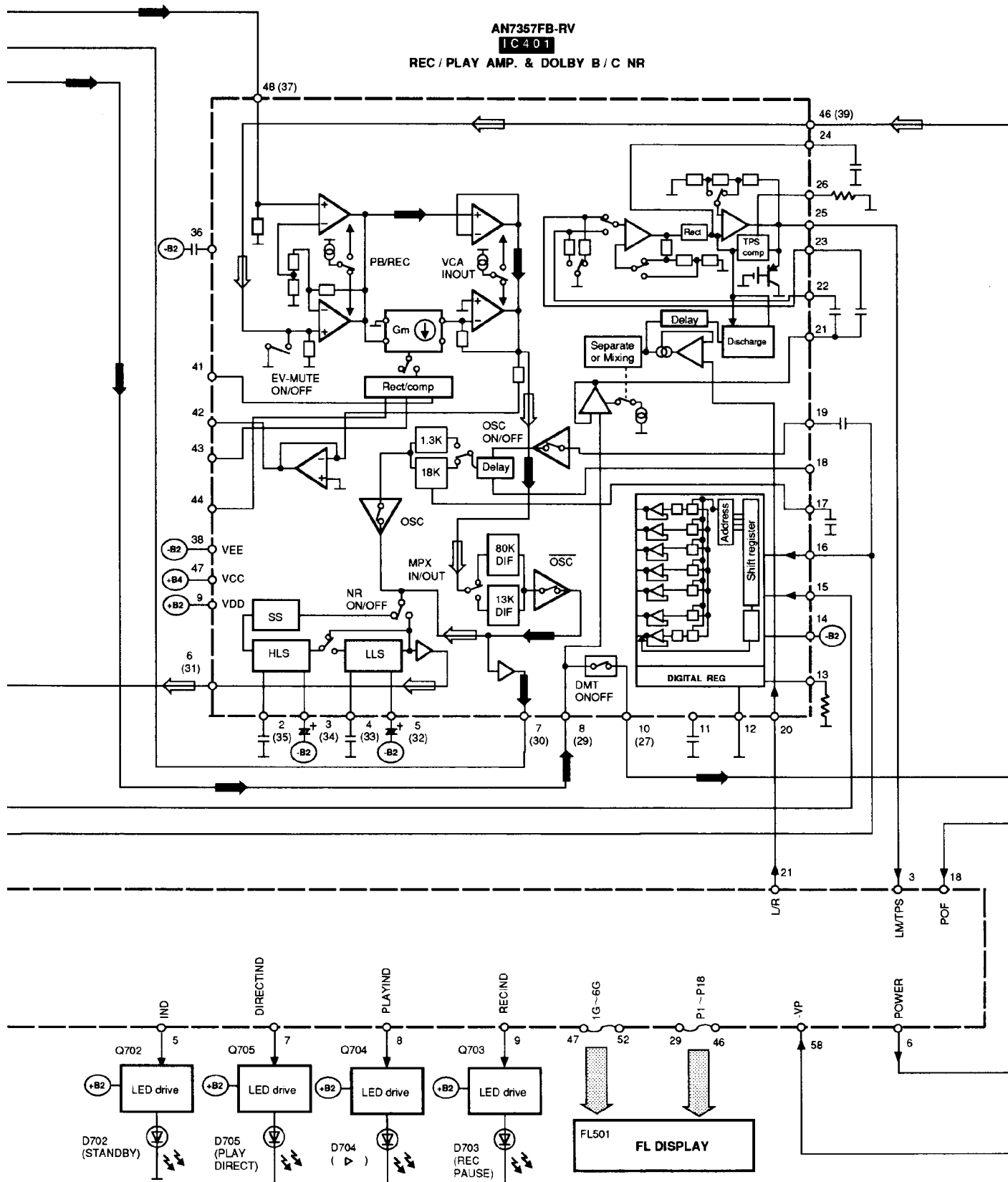


Signal line  $\Rightarrow$  : Playback signal  $\Rightarrow$  : Recording signal  $\ast$  ( ) : indicates pin No. of right channel.

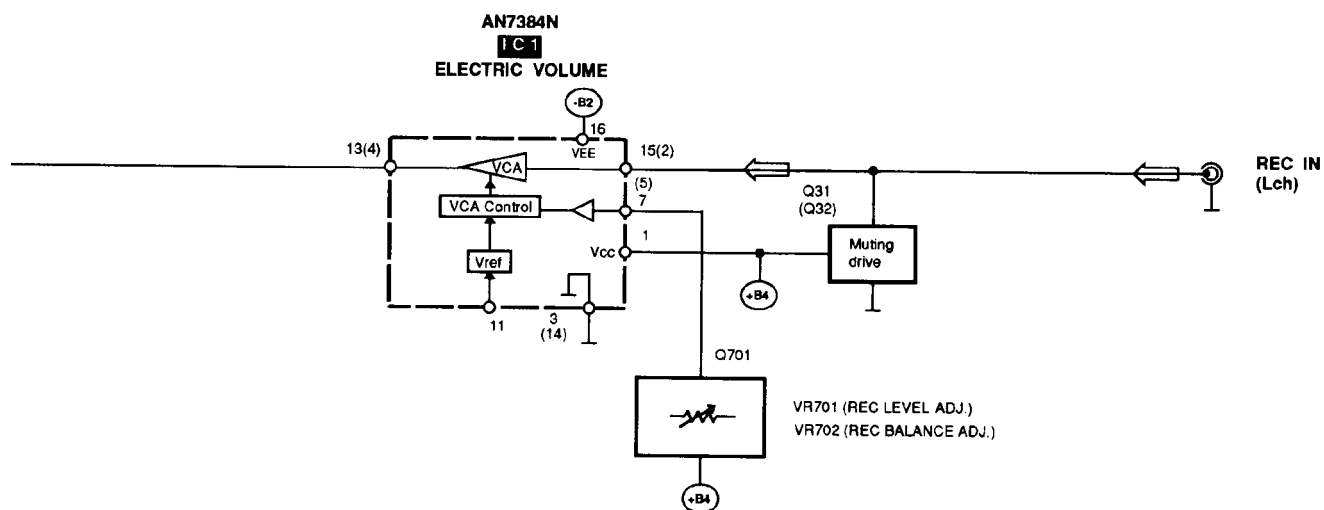


Signal line  $\longrightarrow$  : Playback signal  $\longrightarrow$  : Recording signal

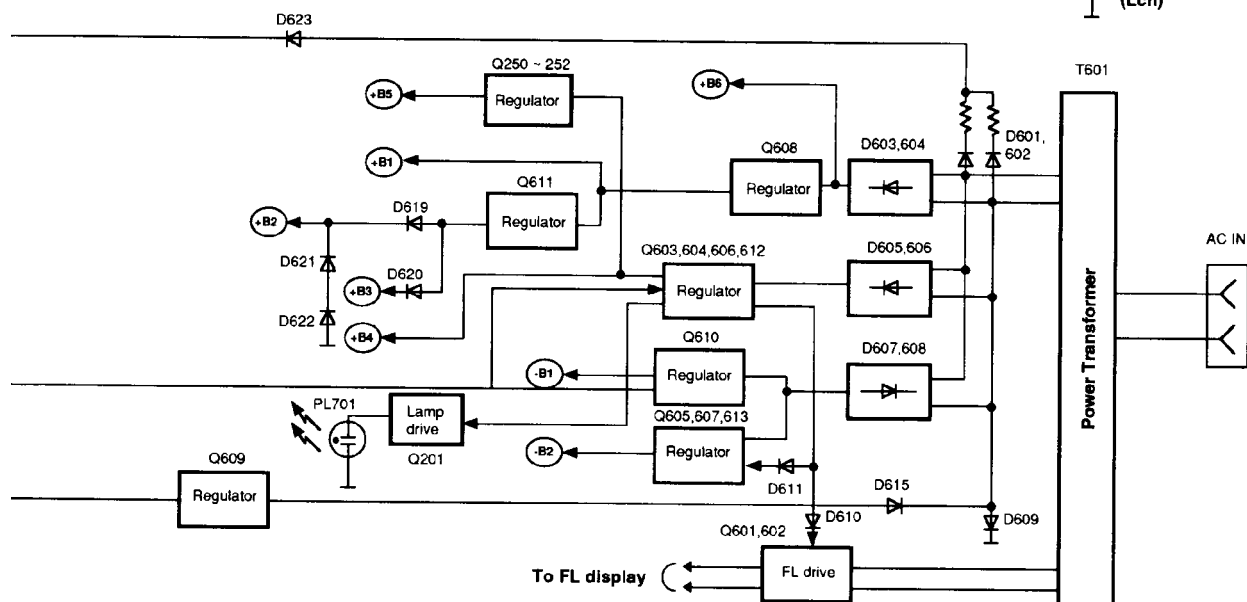
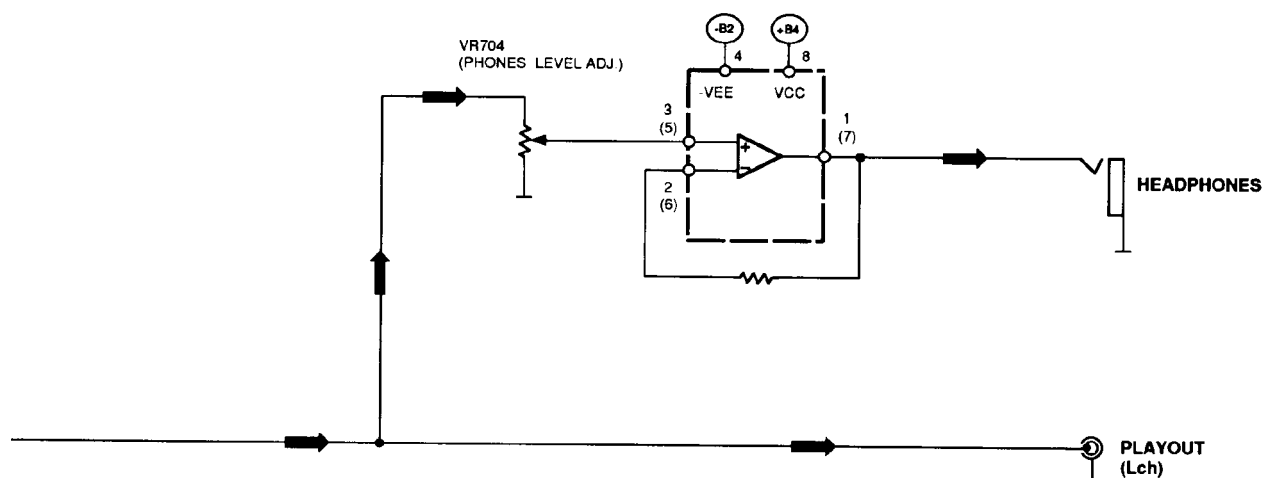
\* ( ) : indicates pin No. of right channel .



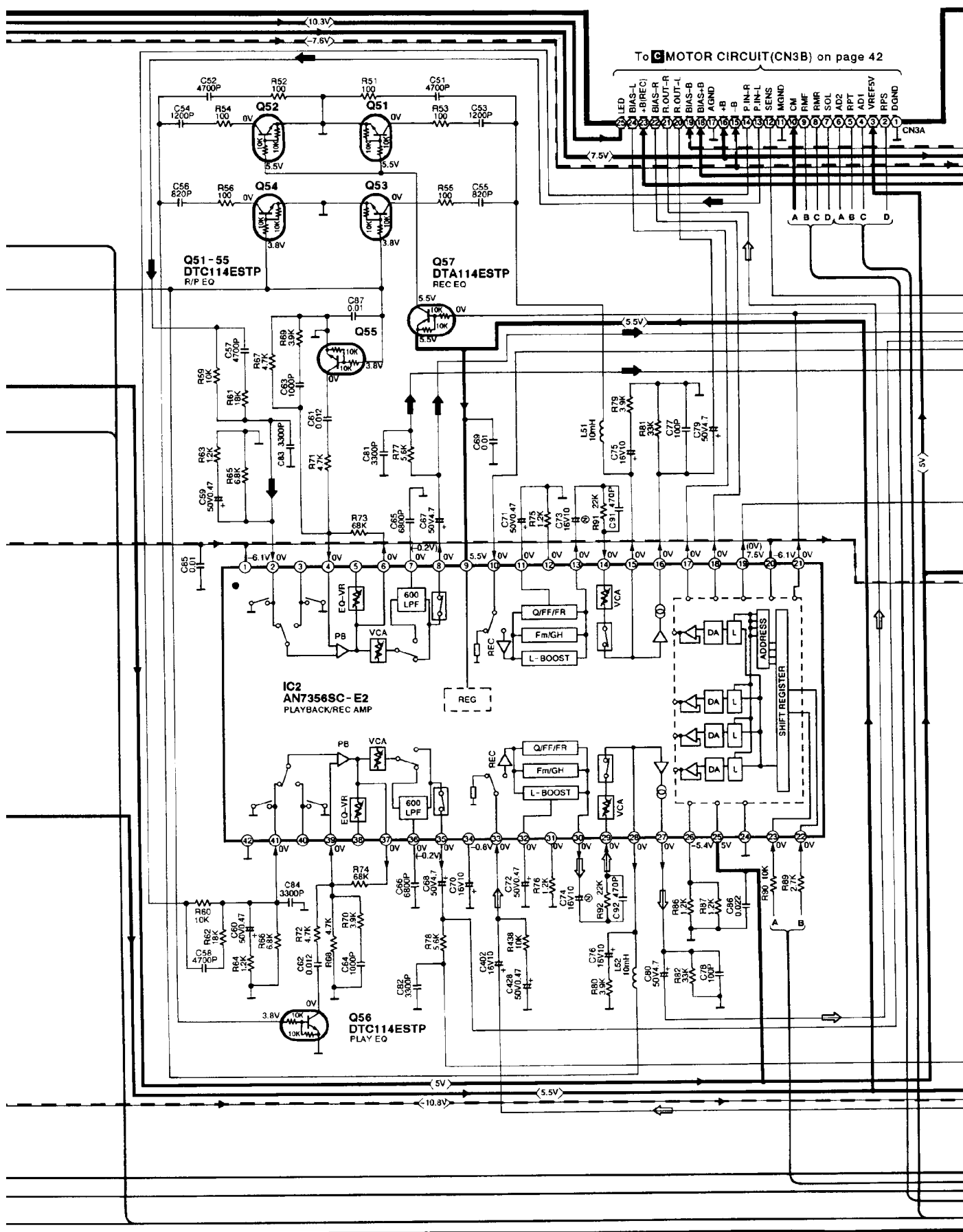


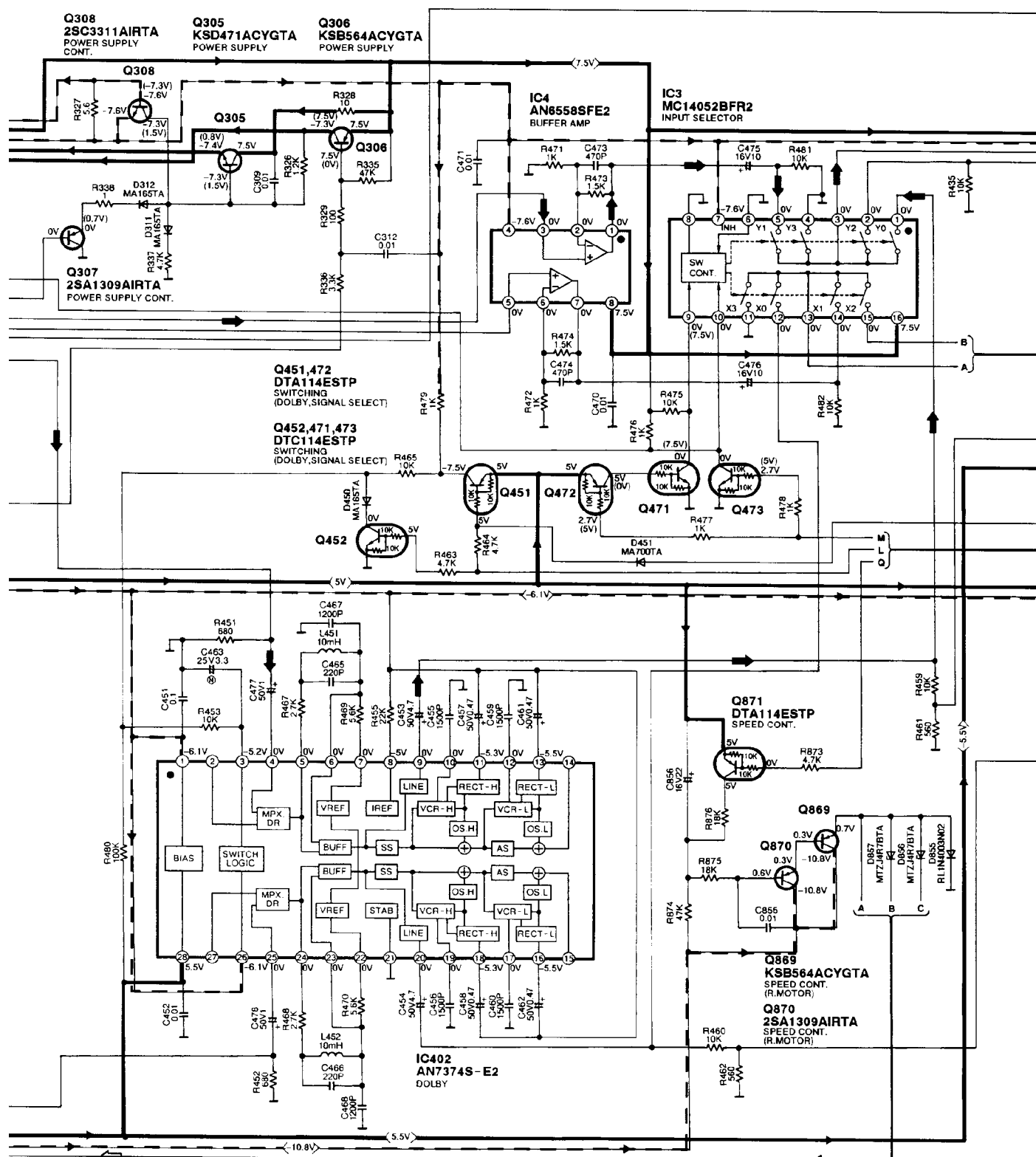


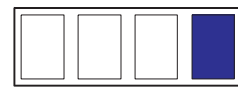
**M5218AL**  
**IC 701**  
**HEADPHONES AMP**

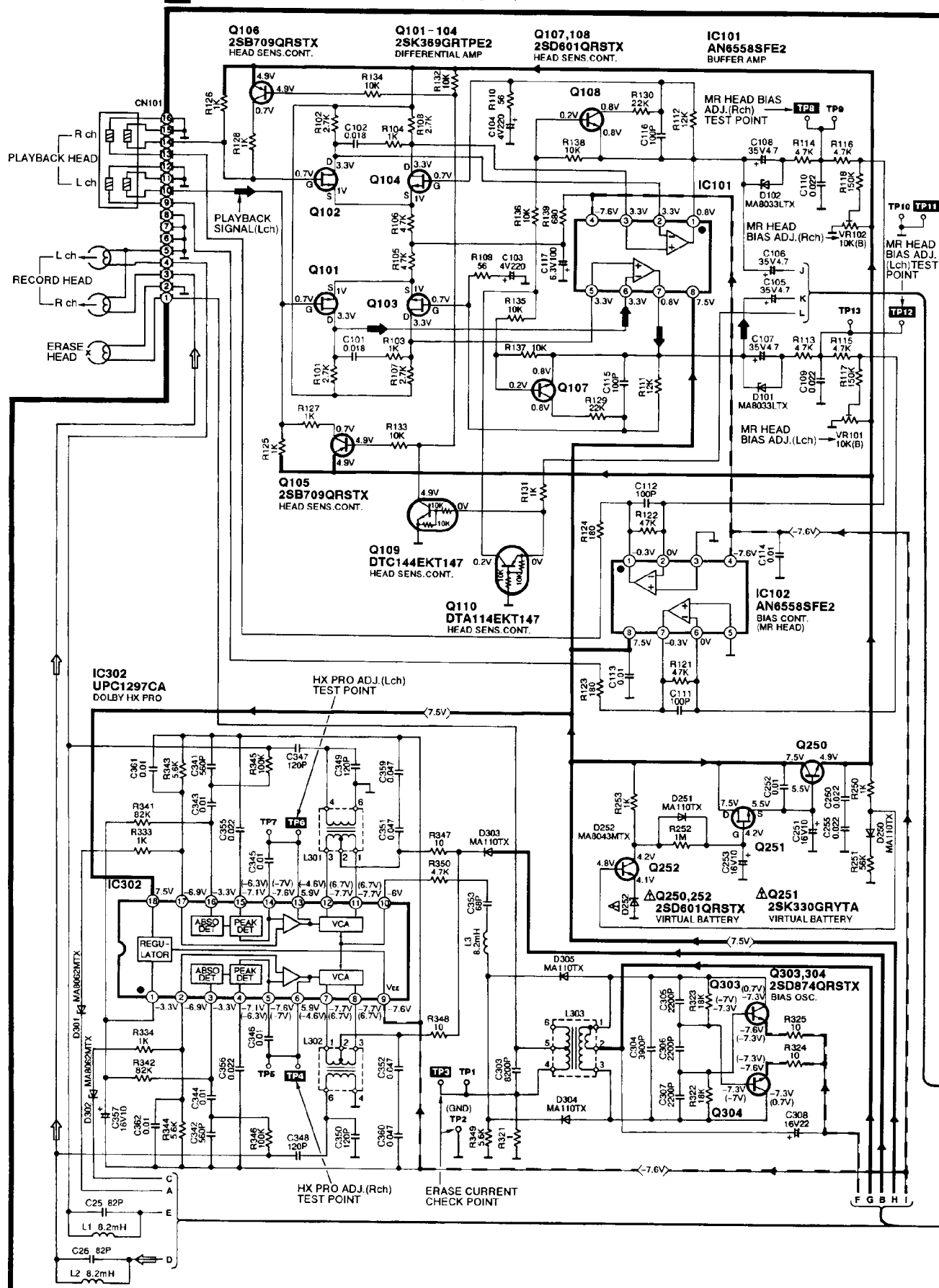


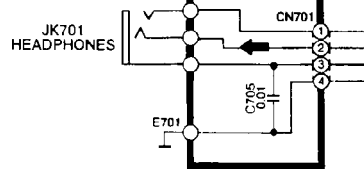
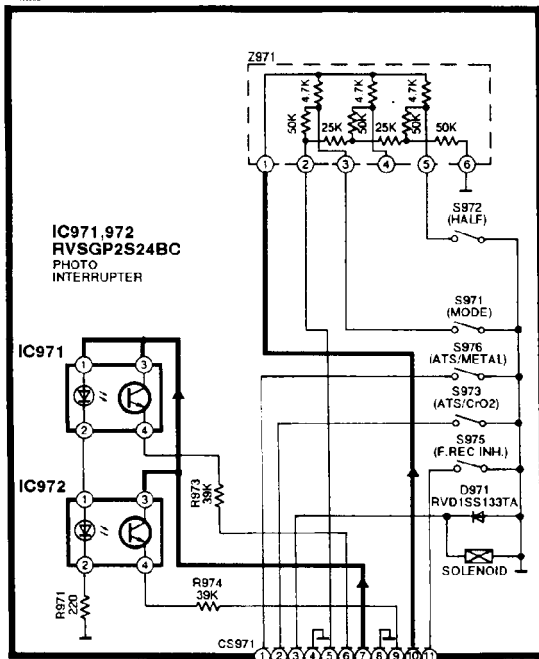
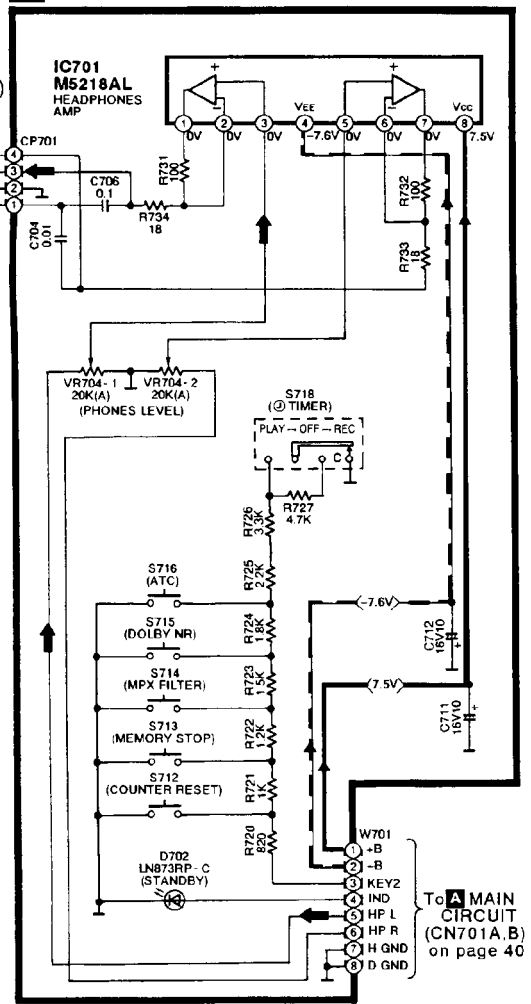
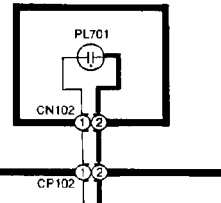




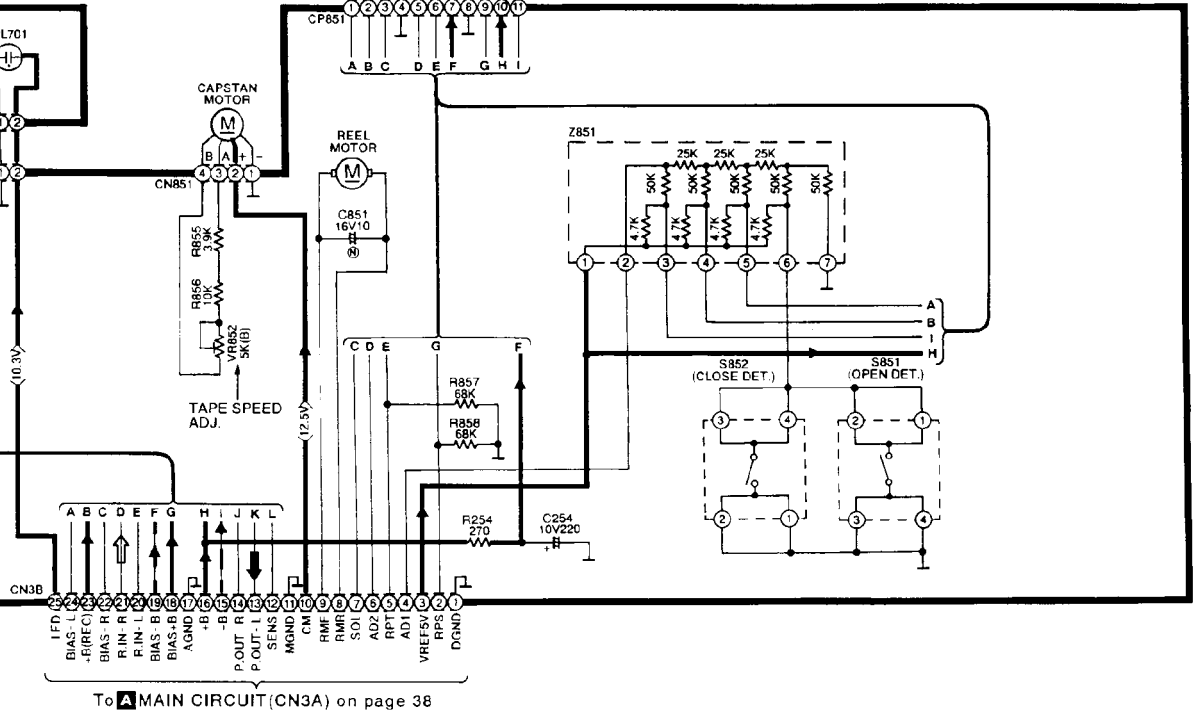






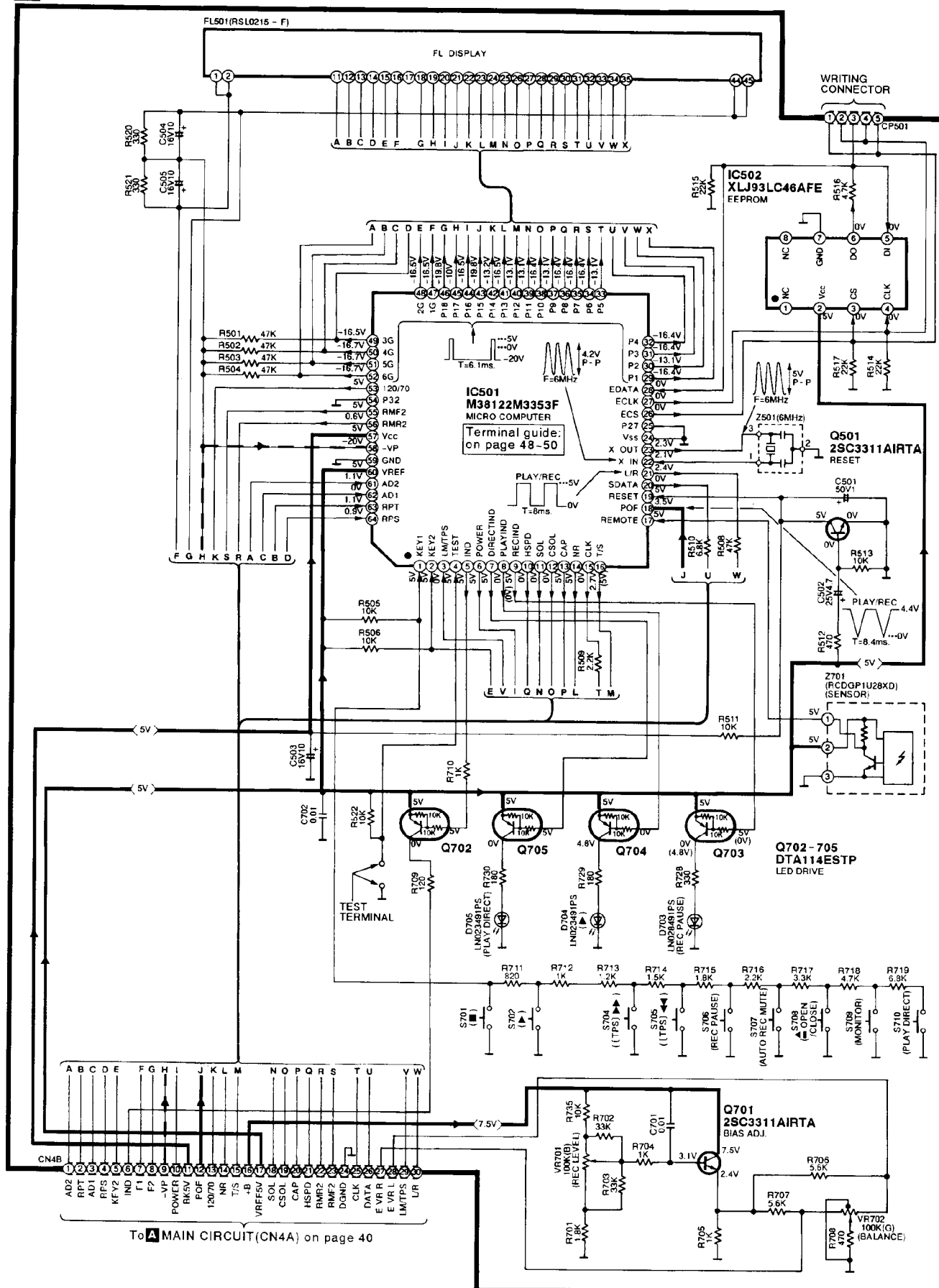
**F** OPERATION CIRCUIT (P.C.Board: on page 45)**E** HEADPHONES JACK CIRCUIT (P.C.Board: on page 45)**D** MECHANISM CIRCUIT (P.C.Board: on page 44)**G** LAMP CIRCUIT (P.C.Board: on page 45)

To **A** MAIN CIRCUIT (CN701A, B) on page 40



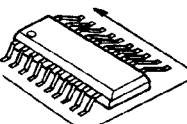
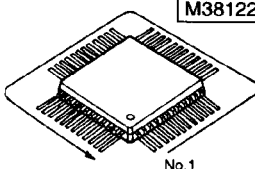
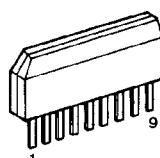
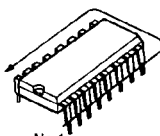
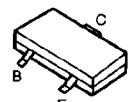
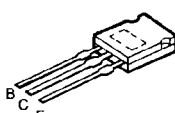
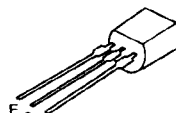

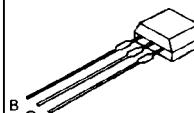

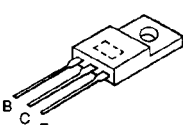
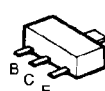
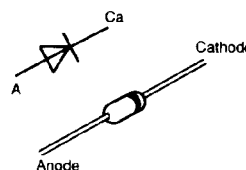
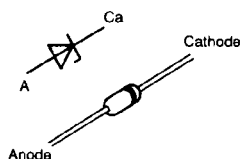
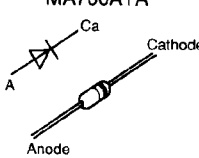
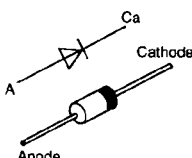
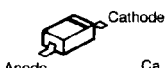
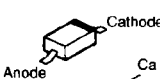
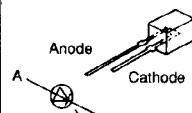
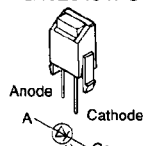
To **A** MAIN CIRCUIT (CN3A) on page 38





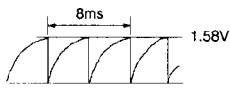
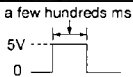




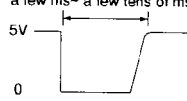
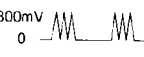
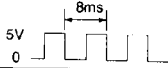




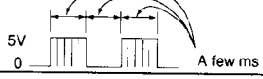
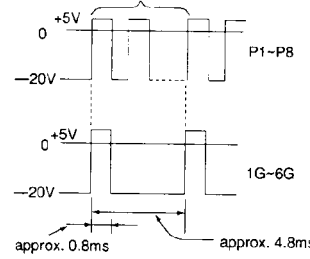
# ● Terminal guide of IC's, transistors and diodes



<div>No.1</div> 		<div>AN6558SFE2</div> <div>8PIN</div> <div>MC14052BFR2</div> <div>16PIN</div> <div>AN7374S-E2</div> <div>28PIN</div> <div>AN7356SC-E2</div> <div>42PIN</div>	<div>No.1</div> 		<div>AN7357FB-RV</div> <div>48PIN</div> <div>M38122M3353F</div> <div>64PIN</div>	<div>TA7291S</div> <div>9</div> 
<div>RVSGP2S24BC</div> <div>4</div> <div>1</div> <div>3</div> <div>2</div> <div>4</div> <div>3</div> <div>2</div> <div>1</div>	<div>AN7384N</div> <div>16PIN</div> <div>UPC1297CA</div> <div>18PIN</div> <div>No.1</div> 	<div>XLJ93LC46AFE</div> <div>8</div> <div>5</div> <div>1</div> <div>4</div>	<div>M5218AL</div> <div>1</div> <div>8</div>	<div>C</div> <div>B</div> <div>E</div> 	<div>2SB709QRSTX</div> <div>2SD601QRSTX</div> <div>DTA114EKT147</div> <div>DTC144EKT147</div>	
<div>2SD2037EFTA</div> <div>B</div> <div>C</div> <div>E</div> 	<div>KSB564ACYGTA</div> <div>KSD471ACYGTA</div> <div>E</div> <div>C</div> <div>B</div> 	<div>2SJ40BCTA</div> <div>2SK330GRYTA</div> <div>2SK369GRTPE2</div> <div>D</div> <div>G</div> <div>S</div> 	<div>DTA114ESTP</div> <div>DTC114ESTP</div> <div>B</div> <div>C</div> <div>E</div> 	<div>E</div> <div>C</div> <div>B</div> 	<div>2SA1309AIRTA</div> <div>2SC3311AIRTA</div> <div>2SD1450RSTTA</div>	
<div>2SB1548PQAU</div> <div>2SD2374PQAU</div> <div>B</div> <div>C</div> <div>E</div> 	<div>2SD874QRSTX</div> <div>B</div> <div>C</div> <div>E</div> 	<div>MA165TA</div> <div>MA29WATA</div> <div>RVD1SS133TA</div> <div>A</div> <div>Ca</div> <div>Cathode</div> <div>Anode</div> 		<div>MTZJ11CTA</div> <div>MTZJ20DTA</div> <div>MTZJ3R3ATA</div> <div>MTZJ4R7BTA</div> <div>MTZJ5R1BTA</div> <div>MTZJ6R8CTA</div> <div>MTZJ8R2CTA</div> <div>MTZJ9R1BTA</div> <div>A</div> <div>Ca</div> <div>Cathode</div> <div>Anode</div> 		
<div>MA178TA</div> <div>MA700ATA</div> <div>A</div> <div>Ca</div> <div>Cathode</div> <div>Anode</div> 	<div>RL1N4003N02</div> <div>A</div> <div>Ca</div> <div>Cathode</div> <div>Anode</div> 	<div>MA8033LTX</div> <div>MA8043MTX</div> <div>MA8062MTX</div> <div>Cathode</div> <div>Anode</div> <div>A</div> <div>Ca</div> 	<div>MA110TX</div> <div>Anode</div> <div>Cathode</div> <div>A</div> <div>Ca</div> 	<div>LN873RP-C</div> <div>Anode</div> <div>Cathode</div> <div>A</div> <div>Ca</div> 	<div>LN023491PS</div> <div>LN028491PS</div> <div>Anode</div> <div>Cathode</div> <div>A</div> <div>Ca</div> 	

## ■ TERMINAL GUIDE

### ● IC501 (M38122M3353F): MICROCOMPUTER

Pin No.	Mark	I/O Division	Function	Check Point	Description
1	KEY1	I	KEY SW (STOP, PLAY, FF, REW, REC, ARM, OPEN/CLOSE, MONITOR, PLAYDIRECT) input	S701	When any other key is pressed : 0 to 5V When no key is pressed : 5V When Stop key is pressed : 0V
2	KEY2	I	KEY SW (COUNTER RESET, MEMORY, STOP, MPX, DOLBY NR, ATC, TIME REC/PLAY) input	CN4B ⑤	When any other key is pressed : 0 to 5V COUNTER RESET ON : 0V When no key is pressed (TIMER OFF) : 5V
3	LM/TPS	I	Display level and TPS det. input	CN4B ②	0dB signal input mode : TPS mode Program : "H" (5V) No program : "L" (0V) 
4	TEST	I	TEST MODE input	TEST JUMPER	Ordinary mode : "H" (5V) Test mode : "L" (0V) (Service mode)
5	IND	O	STANDBY LED Display output	R710	POWER ON : "H" (5V) (POWER OFF [STANDBY] : "L")
6	POWER	O	Power supply control output ON : "H", OFF : "L"	CN4B ⑩	POWER ON : "H" (5V) POWER OFF : "L" (0V)
7	DIRECT IND	O	PLAY DIRECT LED Display output	Q705 ⑧	PLAY DIRECT ON : "L" PLAY DIRECT OFF : "H"
8	PLAY IND	O	PLAY LED Display output	Q704 ⑧	PLAY : "L" STOP : "H"
9	REC IND	O	REC LED Display output	Q703 ⑧	REC : "L" STOP : "H"
10	HSPD	O	Reel motor high speed select output	CN4B ⑪	High speed FF/REW/TPS mode : "H" (5V) Other : "L" (0V)
11	SOL	O	Solenoid control output	CN4B ⑬	STOP → PLAY : a few hundreds ms PLAY → STOP : "H" 
12	CSOL	O	Solenoid hold control output	CN4B ⑭	FF/REW/TPS mode : "H" (5V) Other : "L" (0V)
13	CAP	O	Capstan motor control output ON : "H", OFF : "L"	CN4B ⑯	STOP/FF/REW : "L" (0V) PLAY : "H" (5V)
14	NR	O	DOLBY NR output	CN4B ⑰	DOLBY OFF : "H" (5V) DOLBY B : "OPEN" (2.5V) DOLBY C : "L" (0V)
15	CLK	O	Serial clock for audio IC output ON : "L", OFF : "H"	CN4B ⑳	 When a mode change occurs
16	T/S	O	Monitor change output	CN4B ⑱	SOURCE : "H" (5V) TAPE : "OPEN" (2.5V) PLAY DIRECT : "L" (0V)
17	REMOTE	I	Remocon signal input ON : "H", OFF : "L"	Z701 ①	H and L pulse waveform appears on the input of a remote control signal.

Pin No.	Mark	I/O Division	Function	Check Point	Description
18	POF	I	Power off det. output ON : "H", OFF : "L"	CN4B ⑫	 Rectified waveform at both 50 and 60Hz (clamping at 5V)
19	RESET	I	Reset input ON : "L", OFF : "H"	Q501 ③	 Usually, H(=5V) but L for a period of a few to a few tens of milliseconds is first plugged in when the player.
20	SDATA	O	Serial data for audio IC output ON : "L", OFF : "H"	CN4B ⑳	 When a mode change occurs
21	L/R	O	Level meter input channel LCH : "L", RCH : "H"	R508	 Always
22	XIN	I	Microcomputer clock OSC terminal	Z501 ①	 Oscillator waveform at 6MHz
23	XOUT	O	Microcomputer clock OSC terminal	Z501 ③	 Oscillator waveform at 6MHz
24	Vss	—	Microcomputer GND	—	0V
25	P27	—	Not used	—	Connected to GND
26	ECS	O	EEPROM STROBE signal output (ON : "H", OFF : "L")	CP501 ⑤	 (ex...For PLAY ↔ STOP mode is changed)
27	ECLK	O	EEPROM serial clock output ON : "H", OFF : "L"	CP501 ④	 (ex...For PLAY ↔ STOP mode is changed)
28	EDATA	I/O	EEPROM serial data signal output ON : "H", OFF : "L"	CP501 ③	 (ex...For PLAY ↔ STOP mode is changed)
29 ┌ 46	P1 ┌ P18	O	FL meter segment output	FL501 ⑮~⑳	 <p>H for 0~6 pulses of duration approx. 0.8 ms each.</p> <p>P1~P8</p> <p>1G~6G</p> <p>approx. 0.8ms</p> <p>approx. 4.8ms</p>
47 ┌ 52	1G ┌ 6G	O	FL meter glid output	FL501 ⑪~⑮	
53	120/70	O	Play EQ output	CN4B ⑬	Normal tape : "H" (5V) CrO <sub>2</sub> , Metal tape : "L" (0V)
54	P32	—	Not used	—	Connected to GND
55	RMF2	O	Reel motor control output (FWD)	CN4B ㉓	PLAY/FF : "L" (0V) Other : "H" (5V)
56	RMR2	O	Reel motor control output (REW)	CN4B ㉔	REW : "L" (0V) Other : "H" (5V)

Pin No.	Mark	I/O Division	Function	Check Point	Description
57	Vcc	I	Microcomputer terminal	CN4B ⑪	+5V
58	-Vp	I	FL meter pull down voltage input terminal	CN4B ⑨	-20V
59	GND	—	GND terminal (A/D)	CN4B ⑭	0V
60	VREF	I	Reference power supply (+5V) (A/D)	CN4B ⑰	+5V
61	AD2	I	Mechanism switch (HALF, MODE) input	CN4B ①	No tape STOP : 5V Tape STOP : approx. 0.6V PLAY : approx. 3.1V
62	AD1	I	Mechanism switch (RECINH, CrO <sub>2</sub> , METAL, OPEN/CLOSE) input	CN4B ③	Changes within the 0~5V range each time any switch is ON/OFF
63	RPT	I	Reel pulse det. input (Take up side)	CN4B ②	 Changes within the 0 ↔ 3V range each time the take up reel is through approx. 30 degrees.
64	RPS	I	Reel pulse det. input (Supply side)	CN4B ④	 Changes within the 0 ↔ 3V range each time the supply reel is through approx. 30 degrees.

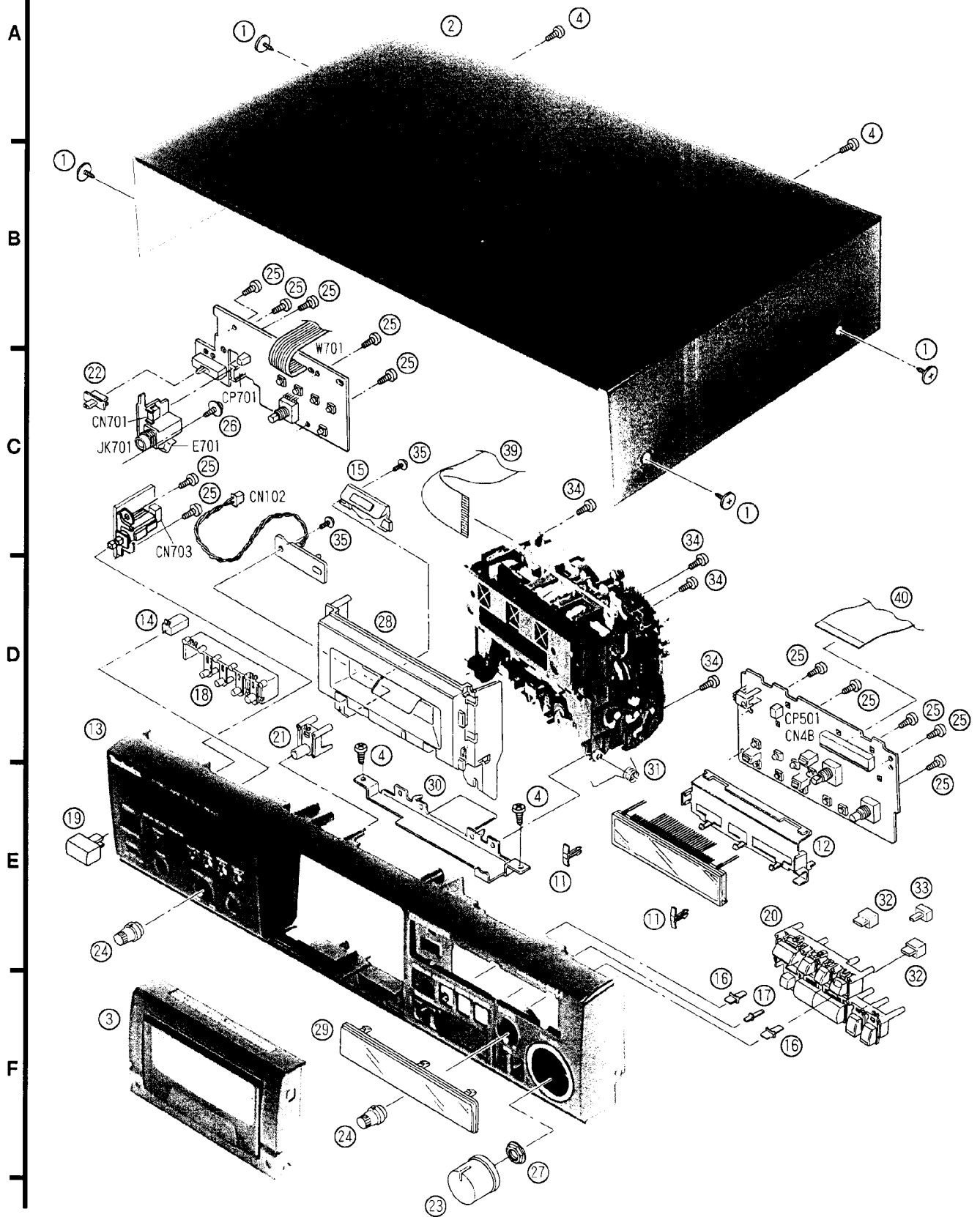
## REPLACEMENT PARTS LIST

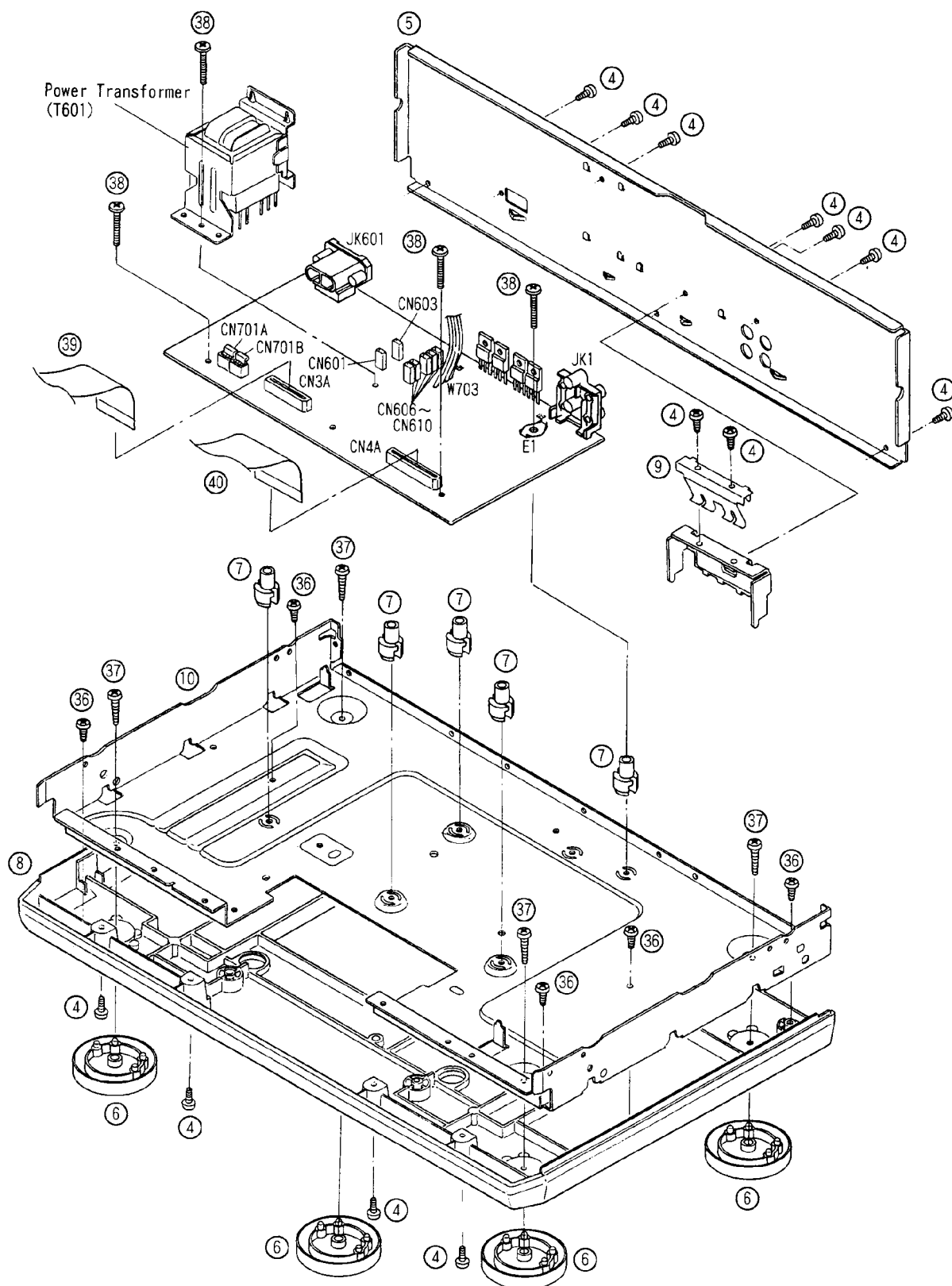
Notes: \* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.) Parts without these indications can be used for all areas.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS		19	RGU0890-K	BUTTON, POWER	
				20	RGU1317-K	BUTTON, OPERATION	
				21	RGU1318-K	BUTTON, ATC	
1	RHD30035-K1	SCREW		22	RGV0112-K	KNOB, TIMER	
2	RKMD114-K	CABINET		23	RGW0063-K	KNOB, REC. LEVEL	
3	RYF0371-K	CASSETTE LID ASS'Y		24	RGW0205-K	KNOB, REC. BALANCE/HP VOLUME	
4	XTBS3+8JFZ1	SCREW		25	RHD26017	SCREW	
5	RGR0230A-B	REAR PANEL	(E, EG)	26	RHD26018	SCREW	
5	RGR0230A-C	REAR PANEL	(EB)	27	RHN90001	NUT	
6	RKA0053-A	FOOT		28	RKQ0190-K	SUB CASSETTE HOLDER	
7	RKQ0089	P. C. B. HOLDER		29	RFKNSA27KB	TRANSPARENT PLATE ASS'Y	
8	RKU0059-K	BOTTOM BOARD		30	RMA0902	MECHANISM ANGLE	
9	RMCO285	ANGLE		31	RMBC388	SPRING, BALANCE	
10	RMK0202B	BOTTOM CHASSIS		32	RMG0410-K	SPACER(A)	
11	RMN0195	FL HOLD PIECE		33	RMG0411-K	SPACER(B)	
12	RMN0265	FL HOLDER		34	XTB3+12GFY	SCREW	
13	RFKNSA27EK	FRONT PANEL ASS'Y		35	XTW2+6S	SCREW	
14	RGLO206-Q	PANEL LIGHT, STANDBY		36	XTB3+10GF2	SCREW	
15	RGLO307-Q	PANEL LIGHT, HALF		37	XTB3+16CFN	SCREW	
16	RGLO308-Q	PANEL LIGHT, PLAY		38	XTB3+20JFZ	SCREW	
17	RGLO309-Q	PANEL LIGHT, DIRECT		39	REFZ0872	FFC (25P)	
18	RFKNSA27KA	BUTTON ASS'Y, DOLBY		40	REFZ0896	FFC (30P)	

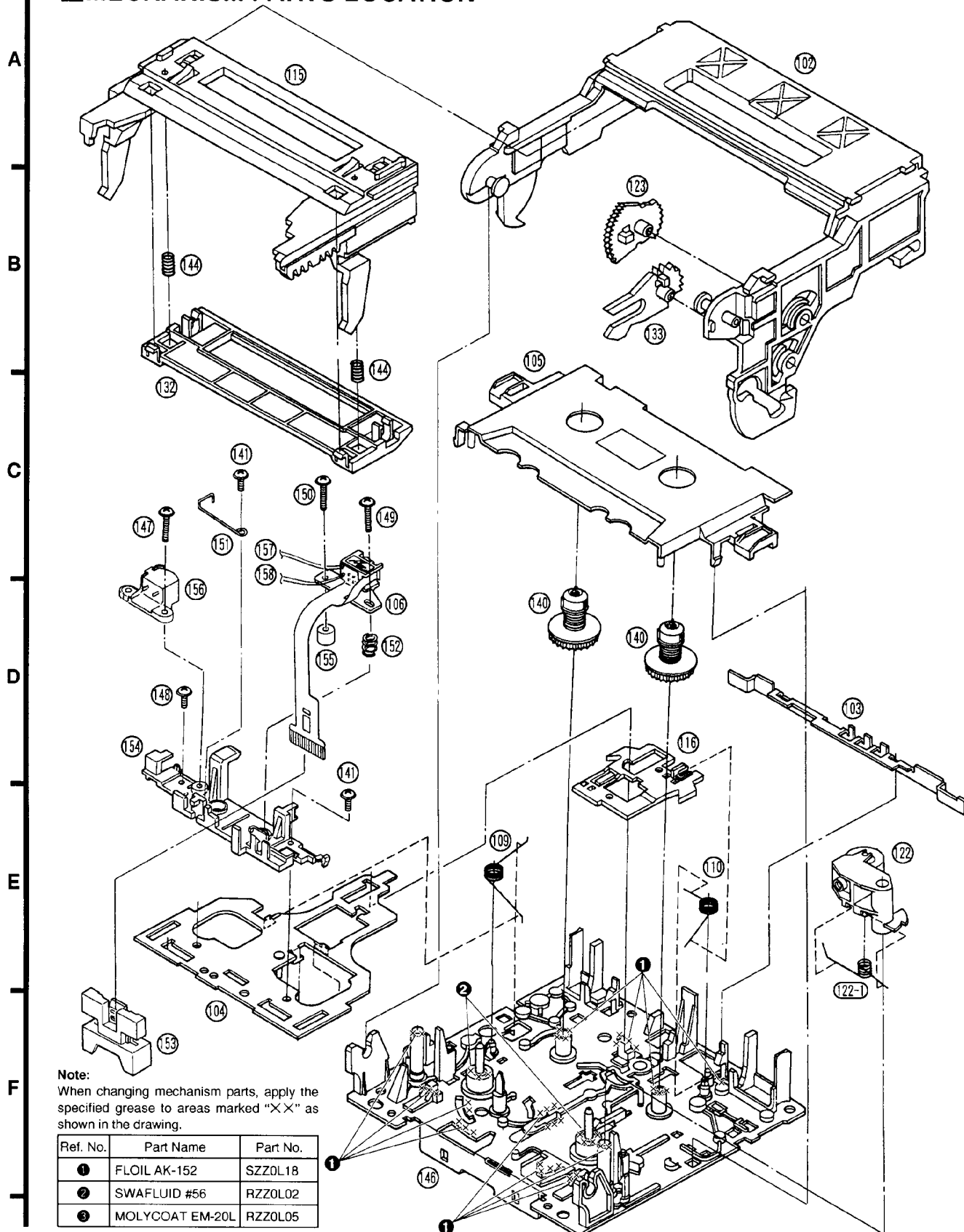
Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS		149	RHD20036-K	SCREW	
				150	RHD20037-K	SCREW	
101	RXF0040	FLYWHEEL (F)		151	RMB0383	SPRING, EARTH	
102	RKF0334-K	CASSETTE HOLDER ASS'Y		152	RMB0485	SPRING, AZIMUTH	
103	RML0272	SWITCH LEVER		153	RMQ0574	HEAD CONNECTOR	
104	RXQ0452	HEAD BASE ASS'Y		154	RMD0782-K	HEAD SPACER	
105	RGR0582-K	DRESSING PLATE ASS'Y		155	RMX0121-1	SPACER	
106	RED0040	HEAD BLOCK (REC./PLAYBACK)		156	SJH96-1	ERASE HEAD	
107	RDV109ZA	BELT		157	REX0776	HEAD READ WIRE (1P)	
108	RDR0019A-1J	MAIN GEAR		158	REX0777	HEAD READ WIRE (1P)	
109	RMB0261	SPRING, HEAD BASE					
110	RMB0262	SPRING, BRAKE ROD					
111	RMB0263	SPRING (F)					
112	RMB0264	SPRING (R)					
113	RWL147ZA	SPRING, TRIGGER LEVER					
114	RML0267A	TRIGGER LEVER					
115	RQG0121-K	LIFTER					
116	RMD091A	BRAKE ROD					
117	RMS0398-1	MOVING IRON CORE					
118	RSJ0003	SOLENOID					
119	RUS6092C	SPRING, TAPE PRESSURE					
120	RXG0036	REEL GEAR					
121	RXL0106	IDLE GEAR					
122	RXP0052	PINCH ARM (F)					
122-1	RMB0259	SPRING, PINCH ARM (F)					
123	RDG0212A	LIFT ARM					
124	RDG0206A-1	LOADING GEAR					
125	RDG0209A	INTERMEDIATE GEAR					
126	REM0036-1	CAPSTAN MOTOR					
127	REM0043	REEL MOTOR (RM852)					
128	RHD26013	SCREW					
129	RMQ0169	SHIELD PLATE					
130	RMQ0314A	SURAS TO SPACER					
131	RXG0037	FRICTION GEAR					
132	RMQ0401	STABILIZER					
133	RML0275A	LIFT GEAR					
134	RMB0269	SPRING, DRIVE LEVER					
135	RML0270A-1	DRIVE LEVER					
136	RMQ0312A	DRIVE RACK					
137	RMB0268	SPRING, HOLDER HOOK					
138	RML0271A	HOLDER HOOK					
139	XTW2-6S	SCREW					
140	RXR0018	REEL TABLE					
141	XTW2-5L	SCREW					
142	XTW26+12S	SCREW					
143	XTW26+6L	SCREW					
144	RMB0324	SPRING, STABILIZER					
145	RFKJSC404AK	SUB CHASSIS ASS'Y					
146	RFKJSCA7NB	CHASSIS ASS'Y					
147	RHD20026-W	SCREW					
148	RHD20031-Y	SCREW					

## ■ CABINET PARTS LOCATION



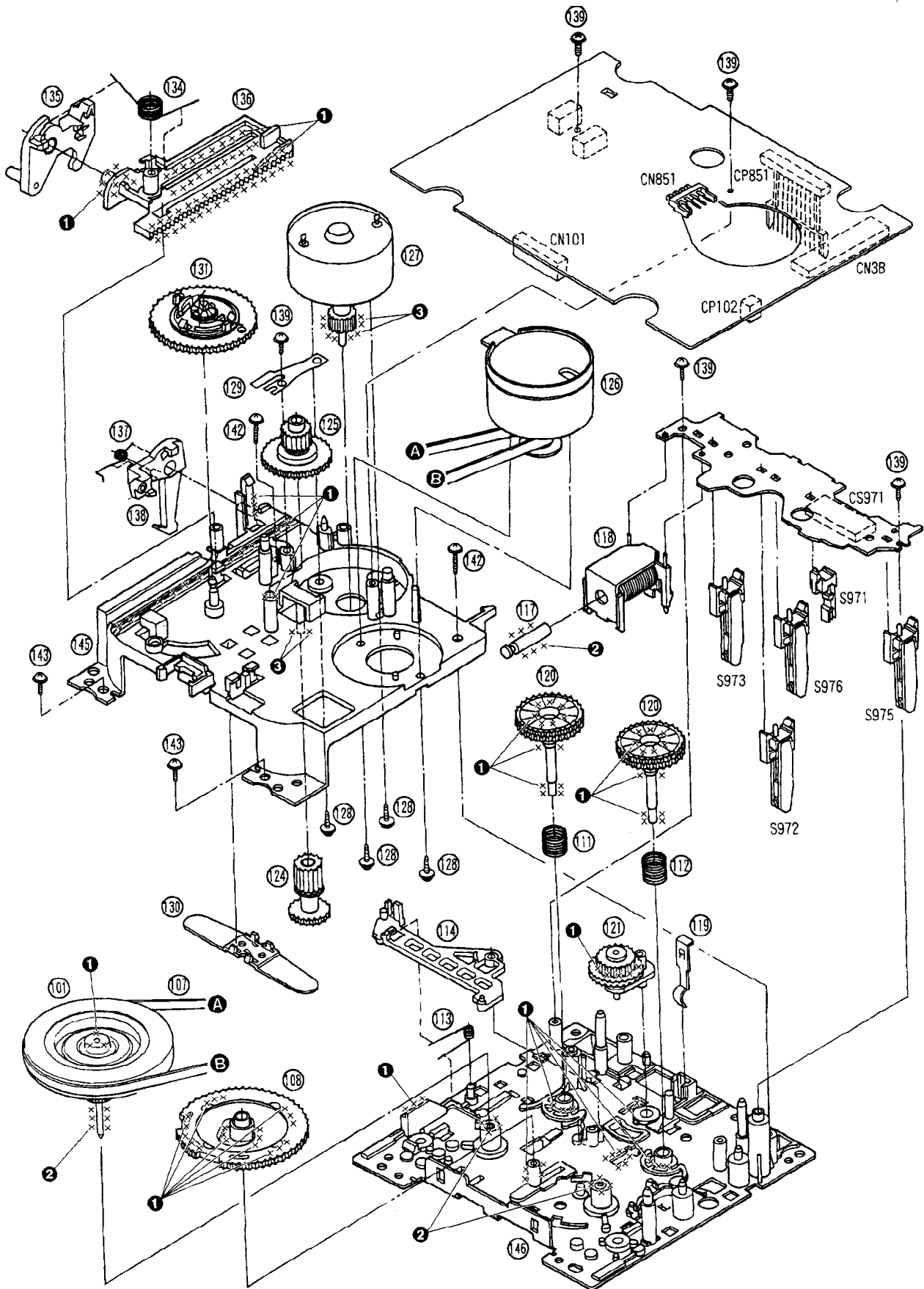


# MECHANISM PARTS LOCATION





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## REPLACEMENT PARTS LIST

**Notes:** \* Important safety notice:

 Components identified by  $\Delta$  mark have special characteristics important for safety.

Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.

When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)		Q608	2SD2374PQAU	TRANSISTOR	$\Delta$
				Q609	KSB564ACYGTA	TRANSISTOR	$\Delta$
				Q610	2SB1548PQAU	TRANSISTOR	$\Delta$
IC1	AN7384N	ELECTRIC VOLUME		Q611	KSD471ACYGTA	TRANSISTOR	$\Delta$
IC2	AN7356SC-E2	PLAYBACK/REC AMP		Q612	2SA1309AIRTA	TRANSISTOR	$\Delta$
IC3	MC14052BFR2	INPUT SELECTOR		Q613	2SC3311AIRTA	TRANSISTOR	$\Delta$
IC4	AN6558SFE2	BUFFER AMP		Q701	2SC3311AIRTA	TRANSISTOR	
IC101, 102	AN6558SFE2	BUFFER AMP		Q702-705	DTA114ESTP	TRANSISTOR	
IC302	UPC1297CA	DOLBY HX PRO		Q861, 862	KSB564ACYGTA	TRANSISTOR	
IC401	AN7357FB-RV	DOLBY B/C NR		Q863-865	DTC114ESTP	TRANSISTOR	
IC402	AN7374S-E2	DOLBY		Q866	KSB564ACYGTA	TRANSISTOR	
IC501	M38122M3353F	MICROCOMPUTER		Q869	KSB564ACYGTA	TRANSISTOR	
IC502	XLJ93LC46AFE	EEPROM		Q870	2SA1309AIRTA	TRANSISTOR	
IC701	M5218L	HEADPHONES AMP		Q871	DTA114ESTP	TRANSISTOR	
IC851	TA7291S	REEL MOTOR DRIVE				DIODE (S)	
IC971	RVSGP2S24BC	PHOTO INTERRUPTER					
IC972	RVSGP2S24BC	PHOTO INTERRUPTER					
		TRANSISTOR(S)		D101, 102	MA8033LTX	DIODE	
				D201	MA700	DIODE	
				D202	MTZJ8R2CTA	DIODE	$\Delta$
Q31, 32	2SJ40BCTA	TRANSISTOR		D250, 251	MA110TX	DIODE	
Q51-56	DTC114ESTP	TRANSISTOR		D252	MA8043MTX	DIODE	$\Delta$
Q57	DTA114ESTP	TRANSISTOR		D301, 302	MA8062MTX	DIODE	
Q101-104	2SK369GRTP-E2	TRANSISTOR		D303-305	MA110TX	DIODE	
Q105, 106	2SB709QRSTX	TRANSISTOR		D311, 312	MA165	DIODE	
Q107, 108	2SD601QRSTX	TRANSISTOR		D450	MA165	DIODE	
Q109	DTC144EKT147	TRANSISTOR		D451	MA700	DIODE	
Q110	DTA114EKT147	TRANSISTOR		D601, 602	MA165	DIODE	$\Delta$
Q201	2SD2037EFTA	TRANSISTOR	$\Delta$	D603-609	RL1N4003N02	DIODE	$\Delta$
Q250	2SD601QRSTX	TRANSISTOR	$\Delta$	D610-612	MA165	DIODE	
Q251	2SK330GRYTA	TRANSISTOR	$\Delta$	D613	MTZJ8R2CTA	DIODE	$\Delta$
Q252	2SD601QRSTX	TRANSISTOR	$\Delta$	D614	MTZJ6R8CTA	DIODE	$\Delta$
Q303, 304	2SD874QRSTX	TRANSISTOR		D615	RL1N4003N02	DIODE	$\Delta$
Q305	KSD471ACYGTA	TRANSISTOR		D616	MTZJ9R1BTA	DIODE	$\Delta$
Q306	KSB564ACYGTA	TRANSISTOR		D617	MTZJ20DTA	DIODE	$\Delta$
Q307	2SA1309AIRTA	TRANSISTOR		D619, 620	RL1N4003N02	DIODE	
Q308	2SC3311AIRTA	TRANSISTOR		D621	MA165	DIODE	
Q401, 402	2SC3311AIRTA	TRANSISTOR		D622	MTZJ5R1BTA	DIODE	$\Delta$
Q451	DTA114ESTP	TRANSISTOR		D623	MA165	DIODE	
Q452	DTC114ESTP	TRANSISTOR		D624	MTZJ11CTA	DIODE	$\Delta$
Q471	DTC114ESTP	TRANSISTOR		D625, 626	MA165	DIODE	
Q472	DTA114ESTP	TRANSISTOR		D627	MTZJ5R1BTA	DIODE	$\Delta$
Q473	DTC114ESTP	TRANSISTOR		D628	MA29WA	DIODE	
Q501	2SC3311AIRTA	TRANSISTOR		D702	LN873RP-C	L. E. D	
Q601, 602	2SD1450RTA	TRANSISTOR		D703	LN028491PS	L. E. D	
Q603	DTC114ESTP	TRANSISTOR		D704, 705	LN023491PS	L. E. D	
Q604	2SA1309AIRTA	TRANSISTOR	$\Delta$	D851	MA178TA	DIODE	
Q605	2SC3311AIRTA	TRANSISTOR	$\Delta$	D852	MA700	DIODE	
Q606	2SD2374PQAU	TRANSISTOR	$\Delta$	D854	MTZJ3R3ATA	DIODE	
Q607	2SB1548PQAU	TRANSISTOR	$\Delta$	D855	RL1N4003N02	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
D856, 857	MTZJ4R7BTA	DIODE		S711	RSP2B010-2J	POWER	△
D971	RVD1SS133TA	DIODE		S712	EVQ21405R	COUNTER RESET	
		IC PROTECTOR(S)		S713	EVQ21405R	MEMORY STOP	
				S714	EVQ21405R	MPX FILTER	
ICP201	SRUN10	IC PROTECTOR	△	S715	EVQ21405R	DOLBY NR	
		VARIABLE RESISTOR(S)		S716	EVQ21405R	ATC	
				S718	RSS3A18YA-H	PLAY TIMER REC.	
VR101, 102	EVNDCAA03B14	MR HEAD BIAS ADJ.		S851	RSHIA024-U	OPEN DETECTION	
VR701	EVJ02FF03B15	REC LEVEL ADJ.		S852	RSHIA024-U	CLOSE DETECTION	
VR702	EVJ02SF02G15	REC BALANCE ADJ.		S971	RSHIA018-1U	MODE	
VR704	EVJY10F01A24	PHONES LEVEL ADJ.		S972	RSHIA019-2U	HALF	
VR852	EVNDCAA03B53	TAPE SPEED ADJ.		S973	RSHIA019-2U	ATS/Cr02	
		OSC. (S) AND COMBINATION(S)		S975	RSHIA019-2U	F. REC. 1NH	
				S976	RSHIA019-2U	ATS/METAL	
						CONNECTOR(S) AND SOCKET(S)	
Z501	EF0EC6004T4	OSCILLATOR(6MHz)		CN3A	RJS1A6825	CONNECTOR(25P)	
Z701	RCDGP1U28XD	REMOTE SENSOR		CN3B	RJS1A6725-D	CONNECTOR(25P)	
Z851	EXBF7L355SYV	COMPONENT COMBINATION		CN4A	RJS1A6830	CONNECTOR(30P)	
Z971	EXBF6L306SYV	COMPONENT COMBINATION		CN4B	RJS1A6230-1	CONNECTOR(30P)	
		COIL (S)		CN101	RJS2A3316	CONNECTOR(16P)	
				CN102	REX0784	CONNECTOR ASS'Y(2P)	
L1-3	RLQZB822KT-D	COIL		CN601	RJS1A1101T1	CONNECTOR(1P)	
L51, 52	RLQB103JT-Y	COIL		CN603	RJS1A1101T1	CONNECTOR(1P)	
L301, 302	SL09B1-K	COIL		CN606-610	RJS1A1101T1	CONNECTOR(1P)	
L303	RL08B005-K	COIL		CN701	RJU057W004	SOCKET(4P)	
L451, 452	RLQB103JT-Y	COIL		CN701A	RJS1A6604	CONNECTOR(4P)	
		TRANSFORMER(S)		CN701B	RJS1A6604	CONNECTOR(4P)	
				CN703	RJS1A6604	CONNECTOR(4P)	
T601	RTP1K4B026-V	POWER TRANSFORMER	△	CN851	RJR0113	MOTOR CONNECTOR(4P)	
		DISPLAY TUBE(S)		CP102	RJP2G177A	CONNECTOR(2P)	
				CP501	SJSS0581BB	SOCKET(5P)	
FL501	RS10215-F	DISPLAY TUBE		CP701	RJT057W004-1	CONNECTOR(4P)	
		LAMP(S)		CP851	RJT071H11A	CONNECTOR(11P)	
				CS971	RJU071H11M	SOCKET(11P)	
						JACK(S)	
PL701	XAMR136S	LAMP		JK1	SJF3069A	TERMINAL BOARD:REC/PLAY	
		SWITCH(ES)		JK601	SJS9236	AC INLET	△
				JK701	SJJD19	HEADPHONES JACK	
						FLAT CABLE(S)	
S701	EVQ21405R	STOP					
S702	EVQ21405R	PLAY		W701	REZ0895-1	FLAT CABLE(8P)	
S704	EVQ21405R	F. F.		W703	REZ0918	FLAT CABLE(4P)	
S705	EVQ21405R	REW.					
S706	EVQ21405R	REC. PAUSE				GND PART(S)	
S707	EVQ21405R	AUTO REC. MUTE					
S708	EVQ21405R	OPEN/CLOSE		E1	SNE1004-2	GND PLATE	
S709	EVQ21405R	MONITOR		E701	SJSD165	GND PLATE	
S710	EVQ21405R	PLAY DIRECT					

## ■ RESISTORS AND CAPACITORS

**Notes:** • Capacity values are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)  
• Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM), 1M=1,000k (OHM)

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
		RESISTORS	R253	ERJ6GEYJ102V	1/10W 1K	R511	ERDS2TJ103	1/4W 10K
			R254	ERJ6GEYJ271V	1/10W 270	R512	ERDS2TJ471	1/4W 470
			R321	ERJ6GEYJ1R0V	1/10W 1.0	R513	ERDS2TJ103	1/4W 10K
R31, 32	ERDAS3G394T	1/4W 390K	R322, 323	ERJ6GEYJ183V	1/10W 18K	R514, 515	ERDS2TJ223	1/4W 22K
R33, 34	ERDAS3G333	1/4W 33K	R324, 325	ERJ6GEYJ100	1/10W 10	R516	ERDS2TJ472	1/4W 4.7K
R35, 36	ERDAS3G273T	1/4W 27K	R326	ERDS2TJ122	1/4W 1.2K	R517	ERDS2TJ223	1/4W 22K
R37, 38	ERDAS3G222T	1/4W 2.2K	R327	ERDS2TJ5R6	1/4W 5.6	R520, 521	ERDS2TJ331	1/4W 330
R39, 40	ERDAS3G561	1/4W 560	R328	ERDS2TJ100	1/4W 10	R522	ERDS2TJ103	1/4W 10K
R41, 42	ERDAS3G272T	1/4W 2.7K	R329	ERDS2TJ101	1/4W 100	R601-604	ERDS2TJ472	1/4W 4.7K
R43, 44	ERDS2TJ225	1/4W 2.2M	R333, 334	ERJ6GEYJ102V	1/10W 1K	R606, 607	ERDS2TJ472	1/4W 4.7K
R45, 46	ERDS2TJ102	1/4W 1K	R335	ERDS2TJ473	1/4W 47K	R608	ERDS2TJ103	1/4W 10K
R51-56	ERDS2TJ101	1/4W 100	R336	ERDS2TJ332	1/4W 3.3K	R609	ERDS2TJ1R5T	1/4W 1.5
R58	ERDS2TJ102	1/4W 1K	R337	ERDS2TJ472	1/4W 4.7K	R610	ERDS2TJ472	1/4W 4.7K
R59, 60	ERDAS3G103T	1/4W 10K	R338	ERDS2TJ1R0	1/4W 1.0	R611	ERDS2TJ104	1/4W 100K
R61, 62	ERDAS3G183T	1/4W 18K	R341, 342	ERJ6GEYJ823	1/10W 82K	R612	ERDS2TJ1R5T	1/4W 1.5
R63, 64	ERDAS3G122	1/4W 1.2K	R343, 344	ERJ6GEYJ562V	1/10W 5.6K	R613	ERDS2TJ101	1/4W 100
R65, 66	ERDAS3G682T	1/4W 6.8K	R345, 346	ERJ6GEYJ104V	1/10W 100K	R614, 615	ERDS2TJ471	1/4W 470
R67, 68	ERDAS3G472T	1/4W 4.7K	R347, 348	ERJ6GEYJ100	1/10W 10	R616	ERDS2TJ101	1/4W 100
R69, 70	ERDAS3G392T	1/4W 3.9K	R349	ERJ6GEYJ562V	1/10W 5.6K	R617	ERDS2TJ331	1/4W 330
R71, 72	ERDAS3G472T	1/4W 4.7K	R350	ERJ6GEYJ472V	1/10W 4.7K	R618	ERD2FCVJ4R7T	1/4W 4.7 Δ
R73, 74	ERDAS3G683T	1/4W 68K	R401, 402	ERDAS3G472T	1/4W 4.7K	R619	ERDS2TJ391	1/4W 390
R75, 76	ERDS2TJ122	1/4W 1.2K	R423	ERDS2TJ223	1/4W 22K	R620	ERDS2TJ101	1/4W 100
R77, 78	ERDAS3G562T	1/4W 5.6K	R425	ERDS2TJ223	1/4W 22K	R621	ERDS2TJ222	1/4W 2.2K
R79, 80	ERDAS3G392T	1/4W 3.9K	R426	ERDS2TJ124T	1/4W 120K	R622	ERD2FCVG100T	1/4W 10 Δ
R81, 82	ERDAS3G333	1/4W 33K	R427	ERDS2TJ272T	1/4W 2.7K	R623	ERDS2TJ101	1/4W 100
R86, 87	ERDS2TJ122	1/4W 1.2K	R428	ERDS2TJ103	1/4W 10K	R624	ERDS2TJ222	1/4W 2.2K
R89	ERDS2TJ272T	1/4W 2.7K	R430	ERDS2TJ222	1/4W 2.2K	R625	ERD2FCVG100T	1/4W 10
R90	ERDS2TJ103	1/4W 10K	R433, 434	ERDS2TJ103	1/4W 10K	R626	ERDS2TJ101	1/4W 100
R91, 92	ERDAS3G223T	1/4W 22K	R435-438	ERDAS3G103T	1/4W 10K	R627	ERDS2TJ103	1/4W 10K
R101, 102	ERJ6GEYJ272V	1/10W 2.7K	R451, 452	ERDAS3G681	1/4W 680	R628	ERD2FCVG180T	1/4W 18 Δ
R103, 104	ERJ6GEYJ102V	1/10W 1K	R453	ERDS2TJ103	1/4W 10K	R629	ERD2FCVG330T	1/4W 33 Δ
R105, 106	ERJ6GEYJ472V	1/10W 4.7K	R455	ERDS2TJ223	1/4W 22K	R630	ERDS2TJ331	1/4W 330
R107, 108	ERJ6GEYJ272V	1/10W 2.7K	R459, 460	ERDAS3G103T	1/4W 10K	R631	ERDS2TJ101	1/4W 100
R109, 110	ERJ6GEYJ560V	1/10W 56	R461, 462	ERDAS3G561	1/4W 560	R632	ERDS2TJ103	1/4W 10K
R111, 112	ERJ6GEYJ123V	1/10W 12K	R463, 464	ERDS2TJ472	1/4W 4.7K	R634	ERD2FCVJ6R8T	1/4W 6.8 Δ
R113-116	ERJ6GEYJ472V	1/10W 4.7K	R465	ERDS2TJ103	1/4W 10K	R701	ERDS2TJ182	1/4W 1.8K
R117, 118	ERJ6GEYJ154V	1/10W 150K	R467, 468	ERDAS3G272T	1/4W 2.7K	R702, 703	ERDS2TJ333	1/4W 33K
R121, 122	ERJ6GEYJ473V	1/10W 47K	R469, 470	ERDAS3G562T	1/4W 5.6K	R704, 705	ERDS2TJ102	1/4W 1K
R123, 124	ERJ6GEYJ181V	1/10W 180	R471, 472	ERDAS3G102T	1/4W 1K	R706, 707	ERDS2TJ562	1/4W 5.6K
R125-128	ERJ6GEYJ102V	1/10W 1K	R473, 474	ERDAS3G152T	1/4W 1.5K	R708	ERDS2TJ471	1/4W 470
R129, 130	ERJ6GEYJ223V	1/10W 22K	R475	ERDS2TJ103	1/4W 10K	R709	ERDS2EJ121	1/4W 120
R131	ERJ6GEYJ102V	1/10W 1K	R476-479	ERDS2TJ102	1/4W 1K	R710	ERDS2TJ102	1/4W 1K
R132-138	ERJ6GEYJ103V	1/10W 10K	R480	ERDS2TJ104	1/4W 100K	R711	ERDS2TJ821	1/4W 820
R139	ERJ6GEYJ681V	1/10W 680	R481, 482	ERDAS3G103T	1/4W 10K	R712	ERDS2TJ102	1/4W 1K
R202	ERDS2TJ102	1/4W 1K	R501-504	ERDS2TJ473	1/4W 47K	R713	ERDS2TJ122	1/4W 1.2K
R203	ERDS2TJ101	1/4W 100	R505, 506	ERDS2TJ103	1/4W 10K	R714	ERDS2TJ152	1/4W 1.5K
R250	ERJ6GEYJ102V	1/10W 1K	R508	ERDS2TJ473	1/4W 47K	R715	ERDS2TJ182	1/4W 1.8K
R251	ERJ6GEYJ563V	1/10W 56K	R509	ERDS2TJ222	1/4W 2.2K	R716	ERDS2TJ222	1/4W 2.2K
R252	ERJ6GEYJ105	1/10W 1M	R510	ERDS2TJ682T	1/4W 6.8K	R717	ERDS2TJ332	1/4W 3.3K

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
R718	ERDS2TJ472	1/4W 4.7K	C57, 58	ECQB1H472JF3	50V 4700P	C407, 408	ECBT1C152JRS	16V 1500P
R719	ERDS2TJ682T	1/4W 6.8K	C59, 60	ECA1HPXSR47B	50V 0.47U	C409, 410	ECEA1HKAR47B	50V 0.47U
R720	ERDS2TJ821	1/4W 820	C61, 62	ECQB1H123JF3	50V 0.012U	C411, 412	ECA1CPXS100B	16V 10U
R721	ERDS2TJ102	1/4W 1K	C63, 64	ECQB1H102JF3	50V 1000P	C413	ECQV1H474JM3	50V 0.47U
R722	ERDS2TJ122	1/4W 1.2K	C65, 66	ECQB1H682JF3	50V 6800P	C414	ECBT1H104ZF5	50V 0.1U
R723	ERDS2TJ152	1/4W 1.5K	C67, 68	ECA1HPXSR47B	50V 4.7U	C416	ECBT1C392KR5	16V 3900P
R724	ERDS2TJ182	1/4W 1.8K	C69	ECBT1E103ZF	25V 0.01U	C417	ECBT1H104ZF5	50V 0.1U
R725	ERDS2TJ222	1/4W 2.2K	C70	RCE1CKA100BG	16V 10U	C418	ECEA1HKAR47B	50V 0.47U
R726	ERDS2TJ332	1/4W 3.3K	C71, 72	ECA1HPXSR47B	50V 0.47U	C419	RCE1CKA100BG	16V 10U
R727	ERDS2TJ472	1/4W 4.7K	C73, 74	ECEA1CN100SB	16V 10U	C422	RCE1CKA100BG	16V 10U
R728	ERDS2TJ331	1/4W 330	C75, 76	ECA1CPXS100B	16V 10U	C423	ECEA1HKA010B	50V 1U
R729, 730	ERDS2TJ181T	1/4W 180	C77, 78	ECBT1H101KB5	50V 100P	C424	ECQV1H474JM3	50V 0.47U
R731, 732	ERDS2TJ101	1/4W 100	C79, 80	ECA1HPXSR47B	50V 4.7U	C425	ECBT1C152KR5	16V 1500P
R733, 734	ERDS2TJ180T	1/4W 18	C81-84	ECBT1C332KR5	16V 3300P	C427, 428	ECA1HPXSR47B	50V 0.47U
R735	ERDS2TJ103	1/4W 10K	C85	ECBT1E103ZF	25V 0.01U	C430, 431	ECBT1H101KB5	50V 100P
R855	ERJ6GEYJ392V	1/10W 3.9K	C86	ECBT1E223ZF	25V 0.022U	C432, 433	ECBT1H471KB5	50V 470P
R856	ERJ6GEYJ103V	1/10W 10K	C87	ECBT1E103ZF	25V 0.01U	C434	ECBT1H101KB5	50V 100P
R857, 858	ERJ6GEYJ683V	1/10W 68K	C91, 92	ECBT1H471KB5	50V 470P	C451	ECBT1H104ZF5	50V 0.1U
R861	ERDS2TJ472	1/4W 4.7K	C101, 102	ECUV1E183KBN	25V 0.018U	C452	ECBT1E103ZF	25V 0.01U
R862	ERDS2TJ223	1/4W 22K	C103, 104	RCE0GKS221IG	4V 220U	C453, 454	ECA1HPXSR47B	50V 4.7U
R863	ERDS2TJ821	1/4W 820	C105-108	ECA1VAD4R7X1	35V 4.7U	C455, 456	ECQB1H152JF3	50V 1500P
R864	ERDS2TJ223	1/4W 22K	C109, 110	ECUV1E223KBN	25V 0.022U	C457, 458	ECEA1HKAR47B	50V 0.47U
R865	ERDS2TJ821	1/4W 820	C111, 112	ECUV1H101KCN	50V 100P	C459, 460	ECQB1H152JF3	50V 1500P
R866	ERDS2TJ472	1/4W 4.7K	C113, 114	ECQB1H103JF3	50V 0.01U	C461, 462	ECEA1HKAR47B	50V 0.47U
R867	ERDS2TJ223	1/4W 22K	C115, 116	ECUV1H101KCN	50V 100P	C463	ECEA1EKN3R3B	25V 3.3U
R868	ERDS2TJ821	1/4W 820	C117	RCE0JKS101IV	6.3V 100U	C465, 466	ECBT1H221KB5	50V 220P
R869	ERDS2TJ681	1/4W 680	C201	ECBT1E103ZF	25V 0.01U	C467, 468	ECBT1C122KR5	16V 1200P
R870	ERDS2TJ102	1/4W 1K	C250	ECUV1E223ZFN	25V 0.022U	C470, 471	ECBT1E103ZF	25V 0.01U
R873	ERDS2TJ472	1/4W 4.7K	C251	ECA1CAD100X1	16V 10U	C473, 474	ECBT1H471KB5	50V 470P
R874	ERDS2TJ473	1/4W 47K	C252	ECUV1H103ZFN	50V 0.01U	C475, 476	ECA1CPXS100B	16V 10U
R875, 876	ERDS2TJ183T	1/4W 18K	C253	ECA1CAD100X1	16V 10U	C477, 478	ECA1HPXS010B	50V 1U
R877, 878	ERDS2TJ562	1/4W 5.6K	C254	ECEA1AKS221I	10V 220U	C501	ECEA1HKA010B	50V 1U
R879, 880	ERDS2TJ100	1/4W 10	C255	ECUV1E223ZFN	25V 0.022U	C502	ECEA1EKAAR7B	25V 4.7U
R971	ERDS2TJ221	1/4W 220	C303	ECQP2A822JZT	100V 8200P	C503-505	RCE1CKA100BG	16V 10U
R973, 974	ERDS2TJ393	1/4W 39K	C304	ECUV1H392KBN	50V 3900P	C601	ECA1EM472E	25V 4700U Δ
			C305-307	ECUV1H222KBN	50V 2200P	C602	ECA1EM221B	25V 220U
		CHIP JUMPER (S)	C308	RCE1CKS220IV	16V 22U	C603	ECKR2H582PE	500V 6800P
			C309	ECBT1E103ZF	25V 0.01U	C604, 605	ECA1VPT102ZE	35V 1000U Δ
RJ11-31	ERJ6GEYOR00V	CHIP JUMPER	C312	ECBT1E103ZF	25V 0.01U	C606	RCE1HM221BV	50V 220U Δ
RJ33-40	ERJ6GEYOR00V	CHIP JUMPER	C341, 342	ECUV1H561KBN	50V 560P	C607, 608	ECBT1E103ZF	25V 0.01U
			C343-346	ECQB1H103JF3	50V 0.01U	C609	ECEA1AU221	10V 220U
		CAPACITORS	C347, 348	ECUV1H121KCN	50V 120P	C610	ECA1AM471B	10V 470U
			C349, 350	ECKR2H121KB5	500V 120P	C611, 612	ECBT1E103ZF	25V 0.01U
C25, 26	ECCR2H820J5	500V 82P	C351, 352	ECUV1E473KBN	25V 0.047U	C613	ECA0JM102B	6.3V 1000U Δ
C31, 32	ECA1HPXS010B	50V 1U	C353	ECUV1H680KCN	50V 68P	C614, 615	ECBT1E103ZF	25V 0.01U
C33, 34	ECA1CPXS100B	16V 10U	C355, 356	ECQB1H223JF3	50V 0.022U	C616	ECEA1HKNR47B	50V 0.47U
C35, 36	ECA1APXS101B	10V 100U	C357	ECA1CAD100X1	16V 10U	C620, 621	ECA1CPX471TB	16V 470U
C37, 38	ECA1CPXS220B	16V 22U	C359, 360	ECUV1E473KBN	25V 0.047U	C622	ECBT1E103ZF	25V 0.01U
C39, 40	ECEA1HKA010B	50V 1U	C361, 362	ECUV1H103ZFN	50V 0.01U	C623	RCE1AKA101BG	10V 100U
C51, 52	ECQB1H472JF3	50V 4700P	C401, 402	ECA1CPXS100B	16V 10U	C701, 702	ECBT1E103ZF	25V 0.01U
C53, 54	ECQB1H122JF3	50V 1200P	C403, 404	ECBT1C182KR5	16V 1800P	C704, 705	ECBT1E103ZF	25V 0.01U
C55, 56	ECKD1H821KB	50V 820P	C405, 406	ECEA1HKAR47B	50V 0.47U	C706	ECBT1H104ZF5	50V 0.1U

Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks	Ref. No.	Part No.	Values & Remarks
C711, 712	RCE1CKA100BG	16V 10U	C853	ECEA1HKAR47B	50V 0.47U	C856	ECEA1CKA220B	16V 22U
C851	ECEA1CSN100I	16V 10U	C855	ECBT1E103ZF	25V 0.01U			

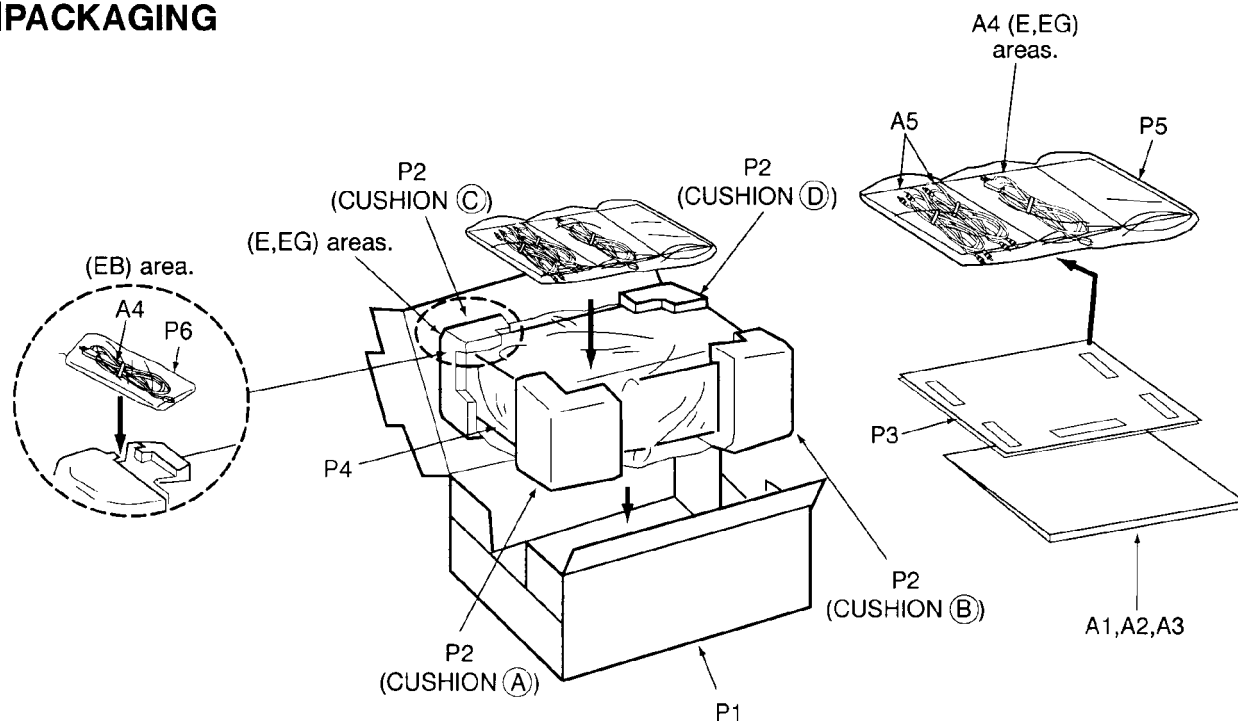
## REPLACEMENT PARTS LIST

**Notes:**

- \* Important safety notice:  
Components identified by  $\Delta$  mark have special characteristics important for safety.  
Furthermore, special parts which have purposes of fire-retardant (resistors), high-quality sound (capacitors), low-noise (resistors), etc. are used.  
When replacing any of components, be sure to use only manufacturer's specified parts shown in the parts list.
- \* The parenthesized indications in the Remarks columns specify the areas. (Refer to the cover page for area.)  
Parts without these indications can be used for all areas.
- \* The "(SF)" mark denotes the standard part.

Ref. No.	Part No.	Part Name & Description	Remarks	Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL		A2	RQAD117	WARRANTY CARD	
				A3	RQCB0169	SERVICENTER LIST	
P1	RPG2956	PACKING CASE	(E, EG)	A4	RJAD019-2K	AC POWER SUPPLY CORD	(E, EG) $\Delta$ (SF)
P1	RPG2957	PACKING CASE	(EB)	A4	RJAD049-K	AC POWER SUPPLY CORD	(EB) $\Delta$
P2	RPN0956	CUSHION	(E, EG)	A5	RJL4P004B0B	STEREO CONNECTION CABLE	
P2	RPN0979	CUSHION	(EB)			<GREASE OR JIG/TOOL>	
P3	RPQ0164	ACCESSORIES PAD				TEST TAPE	
P4	SPP723	PROTECTION COVER (THIS UNIT)					
P5	RPF0139	PROTECTION BAG (F. B., ACC.)		SA1	QZZCFM	OVERALL ADJUSTMENT CHECK	
P6	RPH0032	MIRROR SHEET	(EB)	SA2	QZZCWAT	TEST SPEED ADJUSTMENT	
		ACCESSORIES				GREASE	
A1	RFKSSAZ7EK	INSTRUCTION MANUAL ASS'Y	(E)				
A1	RQT3434-B	INSTRUCTION MANUAL	(EB)	SA3	SZZDL18	FLOIL AK-152	
A1	RQT3433-D	INSTRUCTION MANUAL	(EG)	SA4	RZZDL02	OIL #56	
				SA5	RZZDL05	MOLYCOAT EM-20L	

## PACKAGING



<CUSHION (A), (B), (C), (D) Part No.: RPN0956(E,EG), RPN0979 (EB)>